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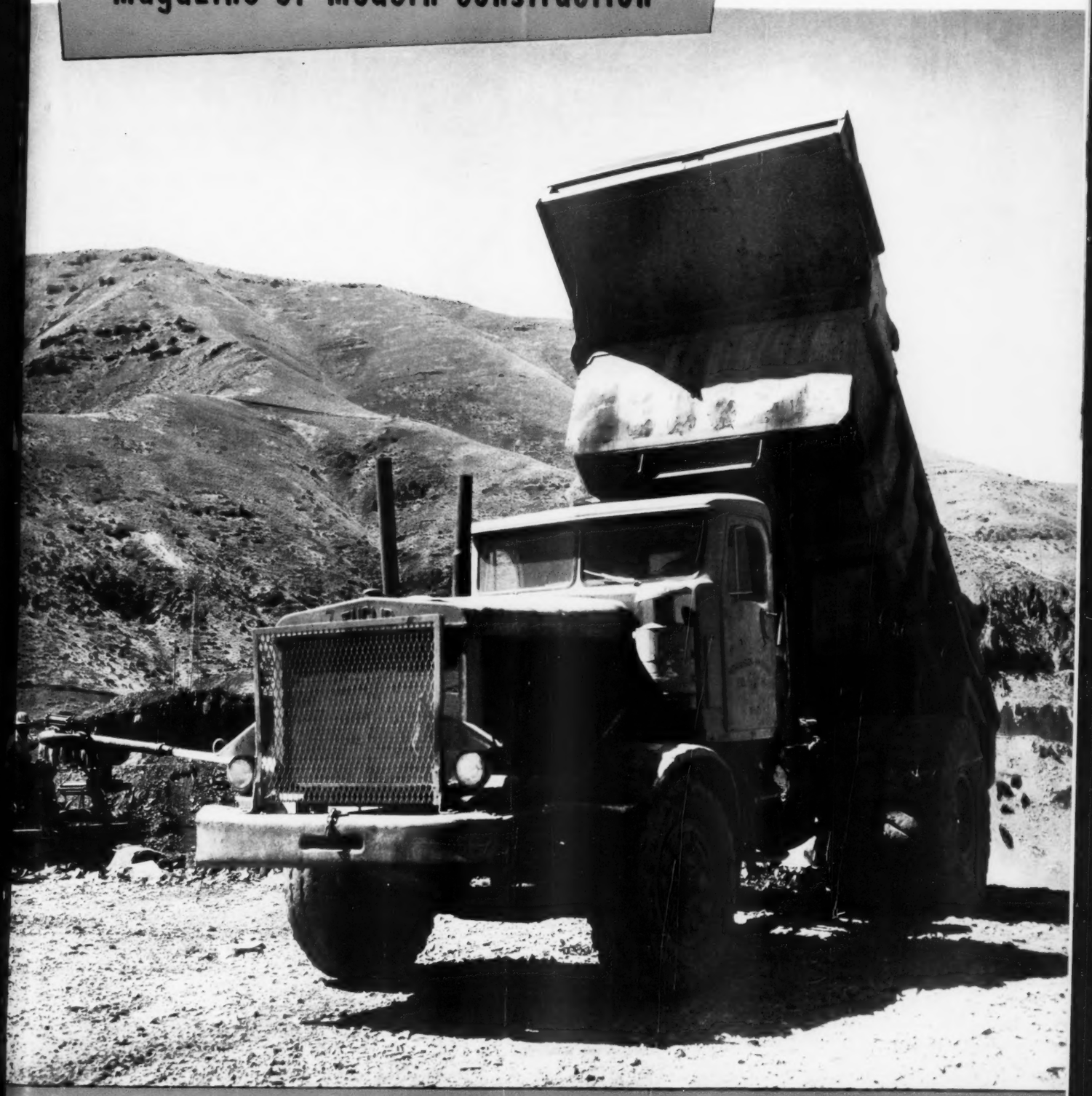
Contractors and Engineers

magazine of modern construction

MARCH 1958

A Buttenheim Publication



Rock fill builds up at Brownlee Dam. Page 6

Laying one course of the 7½ inch Texaco Asphaltic Concrete foundation on US Route 301 in Sussex County, Va.

Contractor

Adams Construction Company, Roanoke, Va.

What type Asphalt pavement for Interstate Highways?

Virginia supplies one answer to that question on the new northbound lane under construction on 11 miles of US Route 301. The most heavily traveled north-south truck route across Virginia, US-301 is part of the new Interstate Highway System.

The foundation for this important project consists of a 7½-inch thickness of coarse-graded, plant-mixed Texaco Asphaltic Concrete, laid in three courses on an 8-inch subbase of selected borrow material. The wearing surface is plant-mixed Texaco Sand Asphalt, laid to a compacted thickness of 1½ inches.

This is one of a number of heavy-duty asphalt pavement designs suitable for Interstate Highway traffic.

Asphalt highways are equal in durability, lower in average upkeep cost, superior in riding quality and *cost substantially less* than rigid highways having the same load-bearing capacity. The important savings afforded by Asphalt become more and more vital to highway officials and motorists, as a result of currently rising road building costs.

Helpful information on methods and materials recommended for all types of Asphalt construction for highways and streets is provided in two free Texaco booklets. Copies may be obtained without obligation by writing our nearest office.

MEMBER

The existing asphalt pavement on US-301 will be the southbound lane of the new divided Interstate Highway.

Section of the Plant-Mixed Texaco Sand-Asphalt wearing surface on new, northbound lane of US-301.

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TEXACO REG. T. M.

TEXACO ASPHALT

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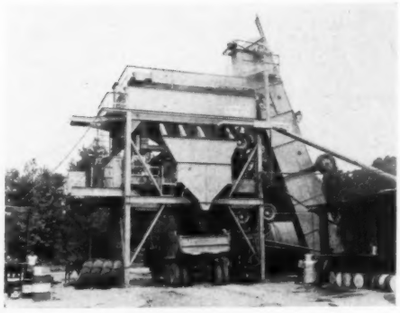

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Editorial

Put it in writing

Blasting in or near residential areas often gives rise to complaints, and these can be a real headache to a contractor. One contractor on a freeway job in a large Western city recently found he could eliminate most of these difficulties by taking the initiative in his relations with the public. He had his crew cover the neighborhood house by house, leaving a printed circular at each door.

The circular explained the project and the need for blasting and mentioned that, inevitably, some dust would be produced during the course of the work. It also went on to explain the contractor's plans for minimizing blast damage and disturbance and controlling the dust.

The circular invited suggestions from the "neighbors" and said that the job would be done with a minimum of nuisance to them. Very few complaints were made during the job, and these, presented in a non-belligerent manner, were accompanied by suggestions for improving the situation.

A similar public relations job is being done by a number of highway contractors, who have to carry traffic right through jobs that have the same potential hazard for traffic as for the contractor's men and machines. These contractors working around the country have adopted a practice of handing out a printed sheet to each motorist entering the work area. On this sheet is a brief explanation of the project, an account of the job hazards, and the need for the motorist to use extreme care and to be patient with delays. Practically all motorists respond much more readily to the sheet than they do to warning signs.

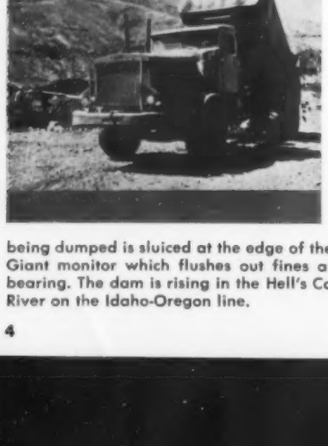
The California Division of Highways used a printed pamphlet as a public relations aid in still another way. When U. S. 40 was being regraded to Interstate standards in Truckee Canyon just east of Donner Pass in the High Sierras, it was necessary to carry traffic through the job, but delays of up to two hours were inevitable because of the heavy rock-blasting.

TO THE TRAVELING PUBLIC
Sorry you're delayed.....
Widening U. S. 40 through this canyon to a 4-lane freeway is a difficult and dangerous job. We're working day and night trying to get it done as quickly and safely as possible.
THIS PROJECT
ROSEVILLE
AUBURN
TRUCKEE
40

The division started its publicity campaign in the press and used roadside signs to publicize the job location and the probability of long delays. At times when the delays occurred, each driver was handed a handsomely printed and illustrated four-page pamphlet titled, "Sorry You're Delayed". It explained and graphically showed the reasons for the delay. The booklet also emphasized that the work was fundamentally an improvement for the benefit of the motorist and was being done as part of a program the motorist had demanded and for which he was paying.

Although hundreds of cars and trucks were lined up waiting to get through the job practically every day, there was little or no complaining or bitterness.

These are just a few of many jobs where contractors and public agencies have trusted a few well chosen words in print to smooth over or eliminate what might have been an unpleasant situation. Contractors, highway agencies, and highway users are coming to realize that they are all part of a team fighting for a better highway system, and that each can assist the other toward a mutual goal.



A Euclid S-18 spills 25 yards of rock over the right abutment for the 5-million-yard rock fill at Brownlee Dam. Rock being dumped is sluiced at the edge of the fill by the Stang Intelli-Giant monitor which flushes out fines and gives the rock point bearing. The dam is rising in the Hell's Canyon area of the Snake River on the Idaho-Oregon line. *Page 6*

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Spex make precision job of rocket sled test track

One of the men on the job at the Air Force Missile Development Center at Holloman AFB, New Mexico, works on one of the interrupter blades of the rocket sled test track.

Perhaps the most stringent requirements of any recent job are those for the nation's longest and fastest rocket sled test track, now nearing completion at the Air Force Missile Development Center at Holloman Air Force Base, New Mexico.

The final section is now being aligned to complete a track that extends over a 7-mile course. The requirements were so stiff that straight line intervals as short as 100 feet could not be considered sufficiently close approximations to a great circle arc. Topographical curves within the track cannot have a radius of less than 2 million feet.

One of the requirements met by Delta Design Engineers, Inc., San Diego, Calif., the engineering firm responsible for aligning the track, was the grinding of welded track joints to within plus 0.0025 inch of the adjoining rail surfaces. This meant that the heavy steel track had to be stretched with a 100-ton jack to nullify the effect of temperature variations. Interrupter blades, used to clock the speeds of rocket sleds, also had to be installed at 13-foot intervals with an accumulated error of less than one inch in 7 miles.

To insure a perfectly smooth surface for rocket sleds, the firm welded each 2-mile section of track into one continuous piece, then stretched this as much as 5 feet with a powerful Simplex hydraulic jack. While the track was in tension, it was anchored into place. This stretching was necessary to keep the rails from buckling as temperatures changed.

Other phases of this job, such as aligning the track, and grinding the inside and outside radii and plane surfaces of all track welds, are being done with equipment specially designed by Delta. THE END.

A Simplex hydraulic jack, anchored to the concrete bed, is used at 135 tons to stretch 2-mile sections of track as much as 5 feet before anchoring work can start.

Look for this nearby Goodyear dealer sign for better tire values —better tire care.

GOODYEAR TIRES

COUNTLESS TONS. Its $400,000,000 price tag attests the scope of this job—which runs nearly 1/5 the way around the world! Up to their ears in countless tons of muck, muskeg, rock, shale and dirt, the contractors are coming up with a minimum of 22-foot pavement on 5- to 10-foot shoulders—and only 271 miles of "impassable" gaps still to go! Shown here is an all-mountain sector in British Columbia which previously boasted *no roads at all.* From coast to coast, Trans-Canada's hard-won miles have felt the sure imprint of Goodyear 3-T Nylon Cord off-the-road tires.

Triple-Tough 3-T Nylon Cord—

the extra durability ***exclusive*** *with*

Off-The-Road Tires by Goodyear!

Like steel, tire cord must be *tempered* to be tough. Goodyear's exclusive process, involves *Tension, Temperature* and *Time, triple-tempers* cord to make it TRIPLE-TOUGH—for longest tire life, lowest cost-per-yard.

From treads to beads, Goodyear off-the-road tires bring you the most advanced and experienced design, engineering and construction known today.

High among Goodyear's exclusive advancements is TRIPLE-TOUGH 3-T NYLON CORD—called the greatest tire *saver* in 23 years.

Only Goodyear off-the-road tires have it—yet they cost no more than other makes built with ordinary Nylon cord.

And on-the-job savings have been spectacular—on some of the toughest jobs on earth!

Try TRIPLE-TOUGH 3-T NYLONS on *your* toughest jobs. You'll agree that "Goodyear is There"—in every way! Goodyear, Truck Tire Dept., Akron 16, Ohio.

Buy and Specify

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND

All-Weather, Road Lug, Sure-Grip—T. M.'s The Goodyear Tire & Rubber Company, Akron, Ohio

For more facts, use Request Card at page 18 and circle No. 202

Short hauls are helping speed the placement of five million yards of rock for Brownlee Dam on the Snake River. Here a P&H 1055 and a Bucyrus-Erie 71-B load rock to Euclid end-dumps while an Ingersoll-Rand Drillmaster and a Joy drill sink blast holes in the ledge.

(Additional photo on front cover)

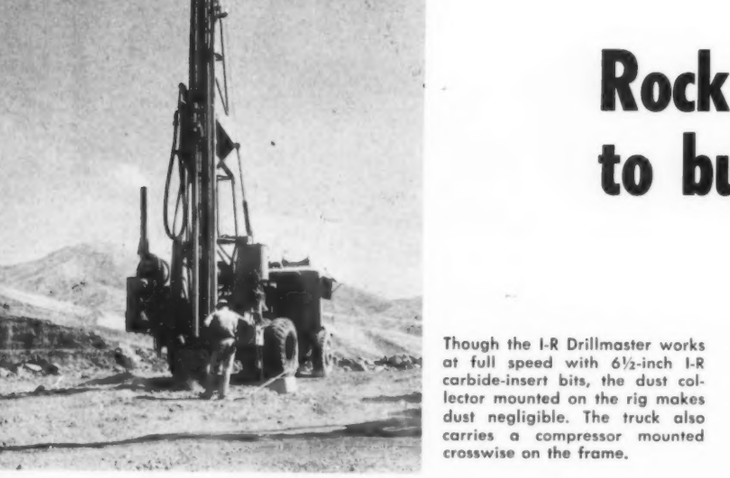
Though the I-R Drillmaster works at full speed with 6½-inch I-R carbide-insert bits, the dust collector mounted on the rig makes dust negligible. The truck also carries a compressor mounted crosswise on the frame.

Rock crews move fast to build Brownlee Dam

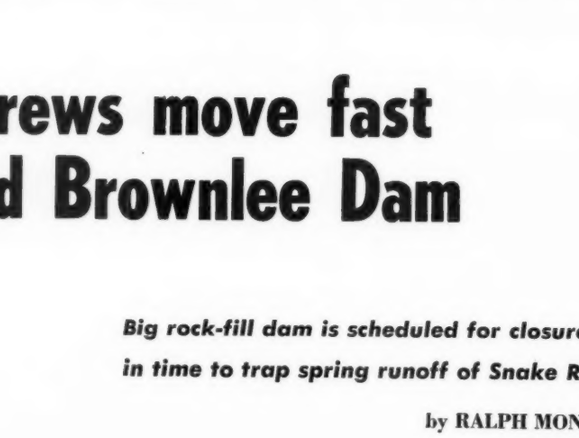
Big rock-fill dam is scheduled for closure in time to trap spring runoff of Snake River

by **RALPH MONSON**
field editor

(Article starts on facing page)



In the east-bank quarry, a Bucyrus-Erie 88-B, left, and a B-E 71-B load rock into waiting Euclids. Wagon drills work on the ledge just above the shovels. At the top of the bank is a new Ingersoll-Rand hydraulically controlled Air-Trac drill which walked itself up an extremely steep trail to get into position to start the new bench.



Rock spilled over the edge of the embankment by a Euclid S-18 is flushed with high-pressure water from a Stang monitor. This sluices out the fines and gives larger rock point bearing.

Working on both sides of the canyon, Stang Intelli-Giant monitors play water at high pressure over the fill. Hydraulic controls, worked by hand levers, enable the operator to reach any point on the fill.

The Bucyrus-Erie 71-B with 3-yard dipper and a P&H 1055 with a 3½-yard dipper dig into the broken rock in the west bank quarry to load out the Euclids. In the background is the construction camp.

Hell's Canyon, a mile-deep canyon which carries the Snake River through the Seven Devils Mountains on the Idaho-Oregon border, has made news as a private vs. public power political football for many months.

But while the pros and cons of private power, public power, high dam, low dam, one dam, three dams have been whirling around government circles and filling columns of newspaper space, construction workers have been busy at one of the sites in the Hell's Canyon area.

At Brownlee Dam, Idaho Power Co., Boise, and its contractor, Morrison-Knudsen Co., Inc., also of Boise, have gone ahead with the work of placing about five million cubic yards of stone for the $63 million dam. This is the first of three hydroelectric projects being constructed by Idaho Power on this section of the river. It will be producing power by October, and it is scheduled for completion by the end of the year, climaxing a remarkably fast construction schedule.

Brownlee Dam is located some 35 miles upstream from the site of the proposed Hell's Canyon Dam and 12 miles upstream from the site of Oxbow Dam, which is presently getting under construction. The big rock-fill dam and its clay core will reach 395 feet above the foundation, and its crest will extend 1,380 feet across the valley. The facility will have 1,500,000 acre-feet of flood-control storage and will generate 360,000 kw of power.

The clay core, which ranges in thickness from a minimum of 30 feet at the top to more than 100 feet near the bottom, extends down to solid rock foundation. The core itself lies at a slope of about 1.5 horizontal to 1 vertical, with the toe pointing upstream.

The downstream rock fill is placed over the existing river-bottom deposits. The material, end-dumped and sluiced, comes to rest at a natural slope of about 1.4 to 1. The upstream protective rock fill is flattened to a slope of 3 to 1. The material is placed in the same way as the downstream fill, but it is benched every 30 feet of height to develop the average 3 to 1 slope.

Layers of filter materials—graduated sand and gravel—are placed on both sides of the core to provide separation from the rock and to provide drainage adjacent to the core on the downstream side. The finished structure will contain about five million cubic yards of rock, and about half a million cubic yards each of impervious core material and filter materials.

(*Continued on next page*)

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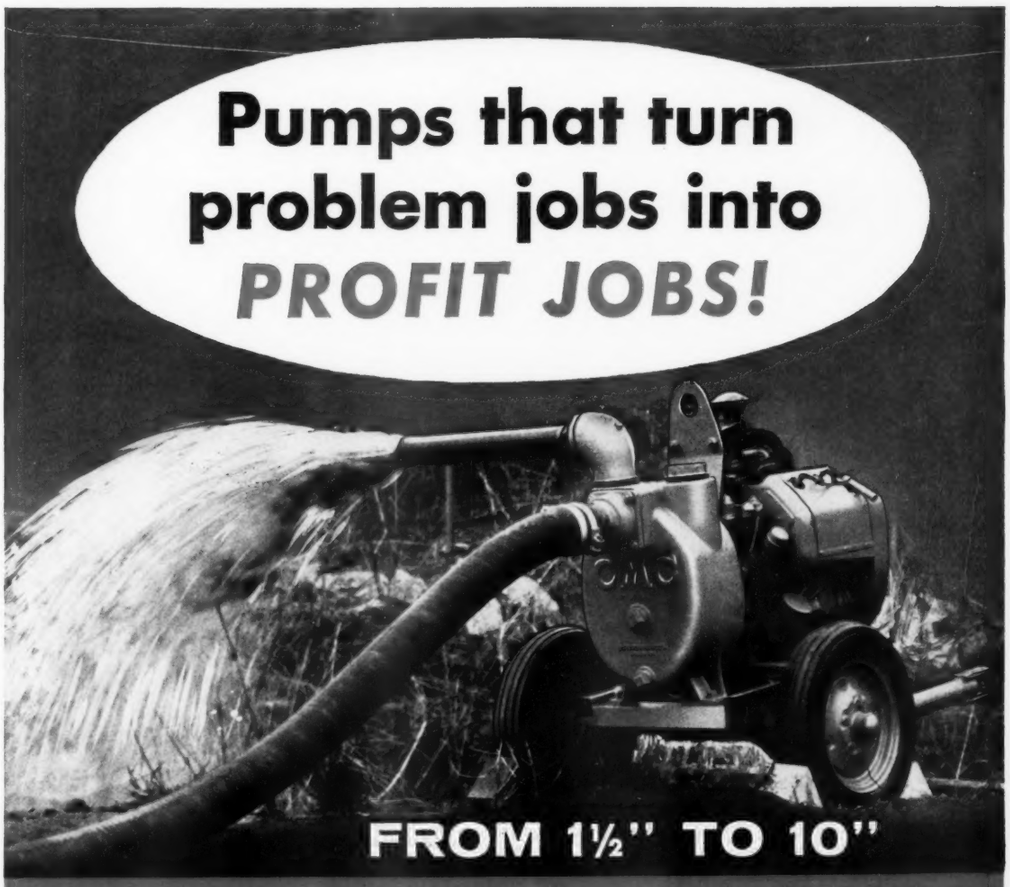

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It's no wonder that contractors "in the know" insist on CMC Dual Primers! They've learned from on-the-job-experience that they can rely on the exclusive features of these pumpers to give FASTER DUAL PRIMING — MORE DEPENDABLE OPERATION — LONGER LIFE WITH LESS MAINTENANCE.

Consider these: Dual Volutes, Self Cleaning Case, Lighter Weight, Longer Life Seal, and Unitized Construction.

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Complete details on Contractors' Pumps with capacities to 240,000 gph. Also full line of 3" and 4" DIAPHRAGM PUMPS — gasoline and electric motor models. 1 or 2-stage HI-PRESSURE PUMPS.

For more facts, use Request Card at page 18 and circle No. 203

Near a face of broken rock, two Ingersoll-Rand Air-Trac drills put down 2¾-inch holes for blasting. Both are operated from an Ingersoll-Rand 600-cfm Gyro-Flo compressor.

material was dumped in place by trucks and end-dump Euclids, dozed and raked by Cat D8 tractor-dozers, and compacted by two Southwest 50-ton compactors pulled by D8's.

Rock embankment

The huge volume of rock embankment is being placed by end-dumping the material on high fills; compaction is obtained by sluicing it with water from six monitors. Sluicing the quarry-run rock provides point bearing of the larger sizes, as all smaller sizes are washed into the voids. This will minimize future settlement.

(Continued from preceding page)

Spillway cut through rock

Much of the rock for the embankment is being obtained from the spillway excavation, which slices into the left abutment, and from the powerhouse and inlet excavations on the right bank. Four 32×50-foot radial gates will control the flow over the crest of the spillway, while three 23-foot-square openings through the spillway crest will have similar gates. This combination of gates permits the passing of 300,000 cfs, more than three times the maximum recorded flood. This gate arrangement also provides a normal draw-down of 101 feet, which will provide more than a million acre-feet of live storage.

On the right bank, four penstock tunnels will convey water to the powerhouse to feed turbines driving four 90,100-kw generators. The first of the generators is expected to be on the line by October and the others will be installed soon afterward.

Excavate core trench

After building roads, bridging the river, and setting up field office and camp facilities, the contractor began excavation of the 38-foot-wide and 42-foot-high horseshoe-shaped diversion tunnel which carries the normal flows of the river 16,000 feet through the right abutment. Since the diversion tunnel was not designed to carry maximum flows, the initial cofferdams were designed for overtopping during the 1957 spring runoff.

Inside these temporary cofferdams, the core trench was excavated down to bedrock, about 115 feet below normal river bottom. After placing a grout curtain to a depth of 150 feet in the rock bed, the crews built the impervious core and filter zones up to the normal river-bottom elevation.

When the 1957 high water receded, the core area was again unwatered, and the accumulated debris removed. During the past season, core construction kept pace with the rock fill, making the structure high enough to impound flood waters this spring.

Clay for the impervious core was obtained from hillside borrow areas some 2,000 feet higher than the dam site and as much as four miles away. The Euclids hauling the half million yards of this material down the steep haul roads made good use of their Torqmatic retarders, thus reducing the wear on brakes and engines.

Filter materials were produced on the site from river-bottom deposits and from the rock excavation. The

Up-to-date, streamlined lubrication method pays significant dividends in maintenance saving

Texaco Simplified Lubrication Plan

Plan can reduce lubricant inventory and improve lubrication. It can mean more productive man-hours, less repair costs, less time lost

If you are using more than six lubricants for your major lubricating jobs, chances are your maintenance costs are a lot higher than they should be. Storage problems, handling costs, and the dangers of mis-application are often costly results of stocking mo lubricants than you need.

Texaco Plan cuts number of lubricants needed

Specifically tailored to your operation by yo local Texaco Lubrication Engineer, this new pl can cut your requirements to not more than six lubr cants for *all* your major lubrication needs. Yet th

To drill the rock in the excavation, M-K used a battery of 24 drills, which included two Joy TM-500's and an Ingersoll-Rand Drillmaster mounted on trucks, together with a large number of Air-Trac drills. Air was supplied to the drills by more than twenty air compressors, including seven Ingersoll-Rand 900-cfm and nine 600-cfm portable rotaries, three Ingersoll-Rand XLE 1,200-cfm stationary machines, and a number of smaller compressors. The Air-Trac drills ordinarily used 2¾-inch carbide insert bits of several makes, while the big drills used carbide-insert bits ranging from 4½ to 6½ inches in diameter. The holes were loaded with Atlas, Hercules, and Columbia powder. Monsanto and Atlas ammonium nitrate was also used.

As the rock was shot down in benches ranging up to 60 feet high, shovels and "Eucs" moved in to load the rock and transport it to the fill. A number of power shovels were in use all of the time, but these were shifted from place to place as the work dictated. Among the shovels were a Bucyrus-Erie 88-B machine of 4-yard capacity, four Bucyrus-Erie 71-B shovels of 3-yard capacity, and three Bucyrus-Erie 54-B machines which alternated as shovels and draglines. Also working on the rock excavation were two P&H 1055 shovels with 3½-yard buckets.

Two Ingersoll-Rand 900-cfm Gyro-Flo compressors located on a ledge above the west bank quarry supply air to drills working below.

Hauling the rock into place were 34 Euclid Model 63TD end-dump trucks of 17-yard capacity. Three new Euclid S-18 rear-dump units joined the fleet later and these 25-yard units made a good showing, especially when they were matched up with the new 88-B shovel.

Since most of the rock could be excavated from the abutment areas, and since the fill was carried out in high lifts, the hauls were relatively short and not too steep. This situation, and a well planned, smooth-functioning organization helped move as much as 20,000 cubic yards of rock in two 9-hour shifts of a normal work day and up to 120,000 cubic yards per six-day week.

Sluicing rock fills

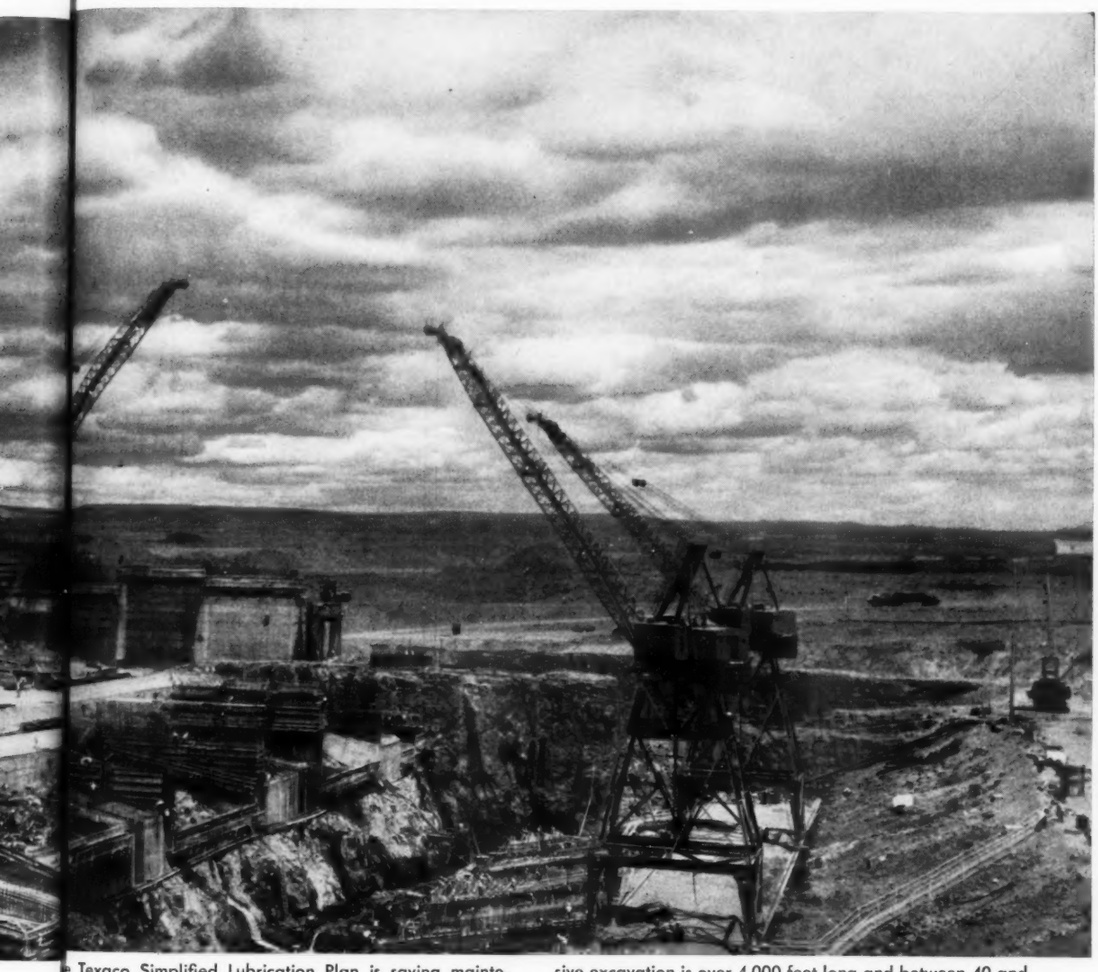
Out on the rock fills, powerful Stang Intelli-Giant hydraulic monitors played heavy streams of water on the rock as it was dumped from the "Eucs". The big all-hydraulic monitors were equipped with 2 and 3-inch nozzles and, with a flip of a lever, the operator could direct the stream either into the material being dumped or to any point on the fill.

Sluicing out fines completely and providing the desired point bearing of the larger rock required careful and continuous operation. As a result, the volume of water used was about four times the volume of rock placed.

The huge volume of high-pressure water was provided by two setups of Byron Jackson pumps, one supplying the monitors on each side of the river. Each setup consisted of a 20-inch, 300-hp vertical turbine pump drafting from the river with two 12-inch, 250-hp boosters right in the lines.

Planning for early completion

The planning and scheduling of construction operations were aimed at the earliest possible completion of the entire job, and this was particularly true in the case of the powerhouse and the power penstocks. Since there was a great deal of rock to be excavated from the powerhouse intake channel, this channel would necessarily be one of the last items to be completed. This being the case, it was decided to excavate the pen-



e Texaco Simplified Lubrication Plan is saving maintenance dollars on this big power house project. This impressive excavation is over 4,000 feet long and between 40 and 90 feet deep.

an is simple to put into action; it works smoothly; d above all, it will save you a significant amount money.

ow the Texaco Plan works

The Texaco Simplified Lubrication Plan is based a proven combination of multi-purpose lubricants varied to meet the particular requirements of your b. Your Texaco Lubrication Engineer will work th you, going over all your lubrication needs to e that your operation gets the *best* in modern lubrition with the *minimum* number of lubricants.

et the complete story

Your nearest Texaco Lubrication Engineer can give you complete information on the Simplified Lubrication Plan. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States; or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

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For more facts, use Request Card at page 18 and circle No. 204

(Continued from preceding page)

stock tunnels from the bottom up, so that both the tunnels and the powerhouse could be completed while the intake channel was being excavated.

The first step in this phase was the excavation of the powerhouse area. When excavation had been carried down to the elevation of the penstock outlets, the penstock tunnels were drilled up through the hill at an angle of 16 degrees 42 minutes with the horizontal. Work on the powerhouse proper had to be delayed until these tunnels could be drilled and lines placed, since the only access to the tunnels was through the powerhouse excavation. Once the tunnels were completed, work went ahead on the powerhouse. By the time the intake excavation was down to the tops of the tunnels, work was well along on the powerhouse. This was not a particularly convenient work sequence, but it may be the means of getting power on the lines as much as a year earlier.

Personnel

Managing the job for Morrison-Knudsen is resident engineer Glenn C. Johnson. On his staff are construction manager M. E. Broan, project engineer Russell E. Martin, office engineer Lloyd G. Miller, excavation superintendent Harry Woodhall, and erection superintendent B. Mark Johnson. Superintendents for various work are Roy Rasmussen, electrical; Nick Carter, pipe; R. C. "Pete" Basett, bridge; and Gene Bolin, structural. Jim Rutherford is swing superintendent; Sam Barta, equipment superintendent; and D. C. "Joe" Thomas, general carpenter superintendent.

Supervising construction for Idaho Power Co. on the job is resident engineer Gomer Condit, who reports directly to chief engineer of power plant construction Fred McCormick, at Boise. Design is in the hands of International Engineering Co., Inc., San Francisco, Calif., an M-K subsidiary. Supervision is being done by Idaho Power Co. engineers and inspectors. THE END

The Garden State Parkway collected $14,388,735 in tolls last year, $2,109,395 more than the total for 1956. This was $429,000 higher than the original estimate.

Board of county engineers to be consultants to BPR

The Bureau of Public Roads has given official approval to a board of county engineers to serve as a consultant body. The BPR appointed the board in order to promote mutual understanding between engineers of the counties, the state highway departments, and the BPR with regard to the federal-aid highway program.

One county representative from each of the nine regions of the BPR will represent all geographic areas of the nation. On the board are: F. Ray Williams, superintendent of highways, Saratoga County, N. Y., Region 1; A. W. Tayman, director of public works, Prince Georges County, Md., Region 2; R. L. Morrison, engineer, Forrest and Stone counties, Miss., Region 3; and Lyle Fuller, highway commissioner, Marathon County, Wis., Region 4.

The other five members include: George W. Deibler, highway engineer, St. Louis County, Minn., Region 5; Joe Abramson, engineer, Caddo Parish, La., Region 6; Walter A. Burg, engineer, Pima County, Ariz., Region 7; Donald B. West, road engineer, Chelan County, Wash., Region 8; and Lamont B. Gunderson, chairman, Board of County Commissioners, Salt Lake County, Utah, Region 9.

Construction under way for TWA hangar, building

Construction of a new maintenance hangar and administration building for Trans-World Airlines, Inc., is well under way at Los Angeles International Airport. The $5 million facility, being built on a 50-acre site, is designed by Holmes & Narver, Inc., Los Angeles, Calif., engineering and construction firm.

The 490-foot-long hangar, of double cantilever construction, will accommodate six airliners. At the southern end of the hangar will be a 30,000-square-foot administration building.

Outside parking positions for 21 aircraft are being provided, plus 300,000-gallon underground fuel storage tanks. There will also be a 13,000-square-foot building for support operations. All construction will be completed by December.

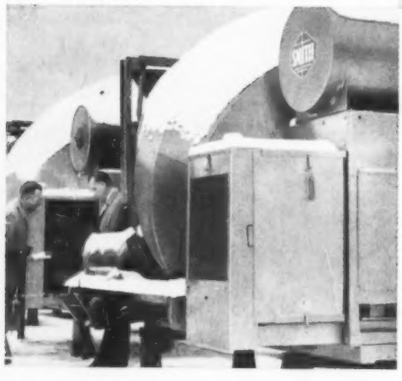
Work to date is $3 billion on highway system

A total of $3 billion has been authorized or actually spent for preliminary engineering, right-of-way acquisition, and construction on the National System of Interstate and Defense Highways in the 19 months from July 1, 1956, to January 31, 1958. An additional $1.2 billion has been programmed for specific projects.

Figures from the Bureau of Public Roads show that 73 miles of the Interstate System was completed during January at a cost of nearly $33 million. During the month, contracts were awarded for the construction of 302 miles.

why
T. L. Smith Co.
powers with
Chrysler
Industrial
Engines

T. L. SMITH EXECUTIVES, Richard R. Kupfer, Director of Purchases (left); Raymond W. Mueller, Project Engineer, inspect Chrysler Ind. 30 Engine which powers all T. L. Smith separate engine mixers—nine models, 5 to 9 yard capacity.



Ready-mix concrete mixers demand rugged power. Most work, for example, is off the road and the mixer engine is subjected to severe jolting and sudden load shifts. The engine is also forced to operate in an atmosphere of abrasive cement dust. The engine is required to turn drum loads ranging up to 40,000 lbs. Operating speeds fluctuate suddenly from 2400 rpm during loading to 800 rpm during agitation.

T. L. Smith Co. has found that Chrysler Industrial Engines are engineered and built to meet these rugged demands better than any other engine in the field. Chrysler's fluid coupling, for example, absorbs sudden load shocks, prolongs engine life. Chrysler's efficient oil-bath air cleaner keeps harmful cement dust from fouling the engine. Chrysler Engines have also proved able to operate at continuous low speeds under heavy loads for long periods without excessive carbon build-up. Most important, Chrysler's day-in, day-out dependability means minimum down time for T. L. Smith customers. In fact, many Chrysler-powered units which are still on the job after six and seven years have never had a major maintenance problem.

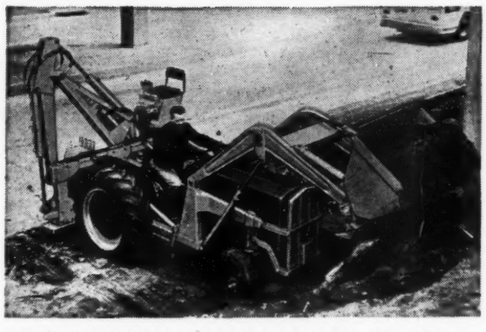
SEND for 1958 CHRYSLER INDUSTRIAL ENGINE CATALOG: Dept. F3, Industrial Engine Division, Chrysler Corporation, Detroit 31, Michigan.

Chrysler
INDUSTRIAL ENGINES
INDUSTRIAL ENGINE DIVISION • CHRYSLER CORPORATION
For more facts, use Request Card at page 18 and circle No. 205

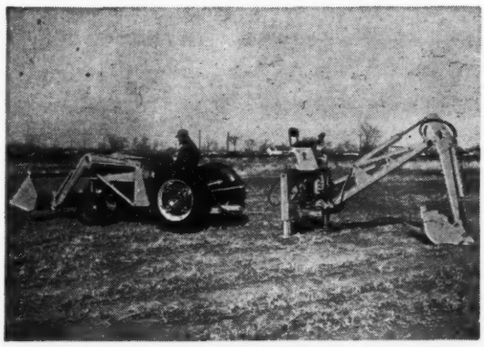
what's it worth to dig in close quarters

DAVIS LOADER-BACKHOE

will get you out of a pinch!



CLOSE-IN DESIGN OF DAVIS LOADER — Provides excellent visibility. It packs the power to take big bites. Sturdy box-frame arms have long reach for discharging loads into fill holes, piles, or high-bed trucks. No wonder, Davis is the one others follow.



FIVE-MINUTE DETACHABILITY — Entire Davis Backhoe can be detached in five minutes if you want to use just your tractor for other jobs. Stabilizer feet and boom form tripod so unit is ready for immediate re-attaching.

The exclusive features, superior maneuverability, and wide-range visibility of Davis rigs let you operate under "pinched" conditions impossible for other rigs... increase your profit potential by eliminating expensive hand digging!

Visibility to Operate in Tight Quarters — Davis works best in close quarters because you don't have to "feel" your way. Low Loader silhouette, location of seat provides excellent view of where you are working.

Sets Up in Places Inaccessible for Other Machines — Exclusive flush digging and continuous 200° operating arc of the Davis 210 Backhoe lets you operate efficiently in places where you would otherwise have to use expensive hand labor. No other machine could work there.

Alert Controls Permit Precision Operations — Independent controls are mounted in convenient fingertip locations that allow you to always face the job. They respond lightning-fast to your command.

Davis Loaders and Backhoes are available for all popular models of International, Ford, Fordson Major, Ferguson, Case, Massey-Harris, Allis-Chalmers, Oliver, John Deere, Minneapolis-Moline, and Work Bull Tractors.

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For the name of your nearest dealers call Western Union by number and ask for Operator 25... or write direct. Please specify make of tractor.

MASSEY-FERGUSON INDUSTRIAL DIVISION
MASSEY-HARRIS-FERGUSON, INC.
1009 S. WEST STREET DEPT. B WICHITA 13N, KANSAS

For more facts, use Request Card at page 18 and circle No. 206

Delay of year on Brownlee Dam is averted as

Penstock tunnel liners are placed from bottom

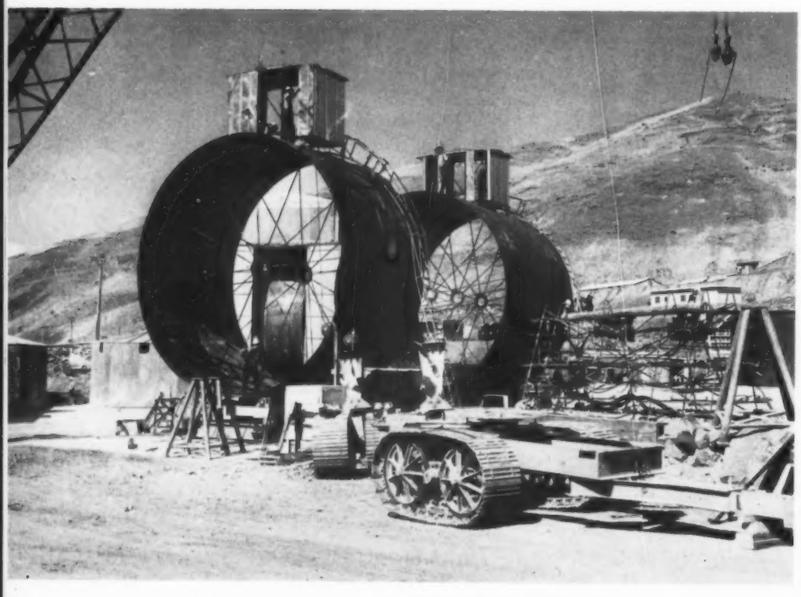
Heavy steel liners for 24-foot-diameter penstock tunnels are prefabricated in 60-foot sections and winched into place

Field fabrication of the penstock tunnel liners begins with the 7.5-foot-high sections made by Kaiser Steel Co., Napa, Calif. At left, the Manitowoc 4500 brings this piece to a template, to be joined to two similar sections. Above, a 24-foot-diameter "can" is being transferred to rollers, right.

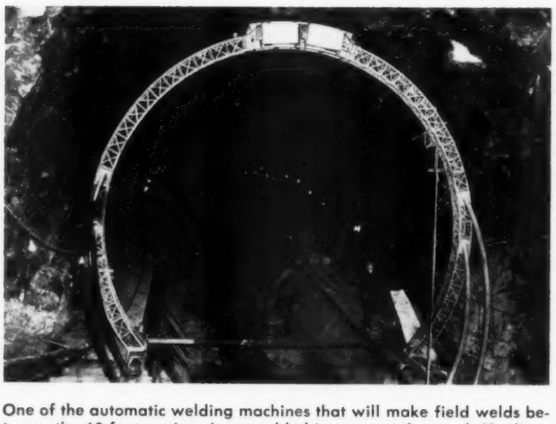
Installation of the steel liners from the bottom in the steeply sloping penstock tunnels at Brownlee Dam on the Idaho-Oregon border was an unusual operation, but one necessary if Morrison-Knudsen Co., Inc., Boise, Idaho, is to meet the fast construction schedule.

Started in late November, 1955, the project is being built on a rush schedule which calls for the first power to be on the line by October of this year and final completion by December. To meet this schedule, the contractor had to complete the penstock tunnels long before the power intake area could be excavated.

The Brownlee powerhouse is being built in a deep excavation hacked out of the solid rock of the deep gorge,

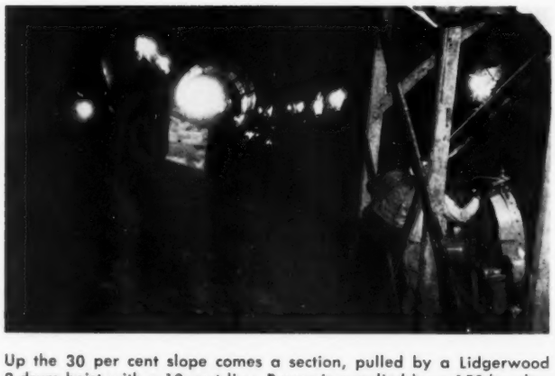


The Worthington rollers rotate the cans at a uniform speed as Lincoln automatic welding machines on platforms atop the sections weld the joints in a single operation. Eight cans, forming a section, are transported to storage or the penstock tunnel area by the Athey Forged-Trak trailers, foreground.



One of the automatic welding machines that will make field welds between the 60-foot sections is assembled in a penstock tunnel. The liner section is anchored to concrete footing blocks. Frames carrying the section up the 30 per cent grade of the tunnel ride rails on each side.

On its way to the penstock tunnels, a 60-foot-long section dwarfs a workman walking alongside. The section rides a Forged-Trak trailer which is pulled by a tractor-dozer. Depending on wall thicknesses, sections weigh from 65 to 95 tons each.



Up the 30 per cent slope comes a section, pulled by a Lidgerwood 2-drum hoist with a 10-part line. Power is supplied by a 150-hp electric motor. The same technique was used on all the penstock tunnels.

Just below the penstock excavation area is the assembly yard for the tunnel liners. In the background is M-K's neat camp site. Shops and warehouses are at the highest level, offices at the next level, and dormitories and mess hall nearest the river.

and the powerhouse intake channel was designed so that its excavation would produce a substantial part of the rock fill for the dam. The rock excavation from the powerhouse area also went into the dam. This meant that the intake area would not be excavated down to final grade until about the time the dam was to be completed, and this was much too late to meet the construction schedule.

Waiting to build the penstock tunnels until the intake excavation had been completed might have meant as much as a year of delay in getting the facility into operation. But by inserting the 60-foot-long sections of the 24-foot-diameter penstock in the bottom ends of the penstock tunnels in the powerhouse excavation, then pulling them up the 30 per cent grade to complete the tunnels first, the contractor was able to go ahead with powerhouse construction while the intake area was being excavated. In this way, both will be completed in time for the initial power production in October.

Build tunnels first

The powerhouse excavation was made first; then the penstock tunnels were drilled upward at an angle of 16 degrees 42 minutes with the horizontal, a 30 per cent grade. At the upper end of the tunnels, a gallery was excavated to connect the four tunnels and provide convenient access from one to the other. This gallery was just a chamber in the solid rock of a mountain at the time the penstock liners and concrete backing were being placed.

When the four 500-foot-long tunnels had been drilled, the 60-foot-long sections of 24-foot-diameter penstock were inserted into the bottom ends of the penstock tunnels and pulled up the 30 per cent grade by a winch. The concrete lining was then placed to complete the penstocks. At this point, the way was clear to proceed with powerhouse construction while the intake excavation was being done.

Fabricating penstock

Plates of the 24-foot-diameter penstock liners were fabricated by Kaiser Steel Corp. at Napa, Calif., and shipped by rail to Robinette, Oreg., about 12 miles upriver from the Brownlee site. Trucks delivered the materials to a fabrication yard on the project site. These plates each formed a third of the 24-foot circle 7.5 feet wide and ranging from ¾ to 1 5/16 inches in thickness.

In the yard, a Manitowoc 4500 crane set three of these elements together on a template to form a 7.5-foot-high cylinder called a can. In the template, the can was trued up, the pieces tack-welded together, and the internal bracing spider placed.

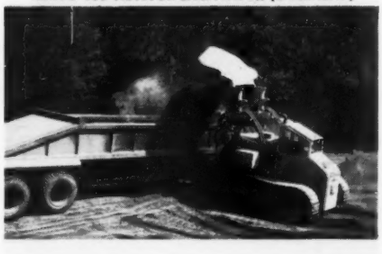
The crane then picked the can up,

(*Continued on next page*)

EIMCO 105 FRONT END SHOVEL

EIMCO 105 TRACTOR-DOZER

EIMCO 105 TRACTOR-EXCAVATOR (OVERHEAD)



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This phrase — customers (the world over) have learned from experience — is the most accurate way to describe the design and construction of Eimco Equipment.

For over three-quarters of a century Eimco has built machines for the rock loading and earth moving industries that are offered to do the tough, hard jobs. You can get a lot more for your money when you buy the Eimco Tractor-Dozer, or the Eimco Tractor-Front End Shovel, or the Eimco Tractor-Excavator (Overhead).

These are tractors that are built to do the job for which they were sold — they are not like all competitive machines — adaptations of agricultural or industrial machines.

Check these exclusive features that you get ONLY when you buy an Eimco:

1. Full visibilty — operator sits up-front.
2. Fast maneuverability — independent track control — power shift.
3. Low center of gravity — climbs 100% grades.
4. Torque converter — elimination of master clutch, gear shifting and levers.
5. Unitized construction — fast, easy maintenance.

Why settle for less — demand the best for your equipment dollars.

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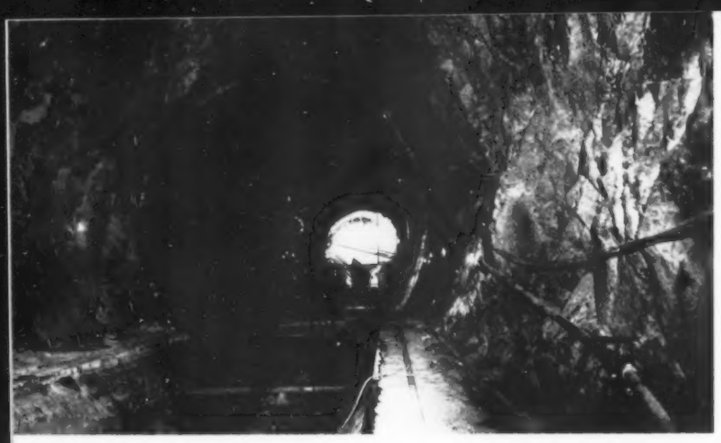
B-315

For more facts, use Request Card at page 18 and circle No. 207



A section is winched up the tunnel with a 10-part line. Footing blocks on both sides of the invert provide positive support for the liner; frames carrying the section ride on rails on each side.

Forged-Trak trailers for transport to storage areas or to the tunnel portals.

Winched-up tunnels

In each of the tunnels, concrete foot blocks were cast on each side of the invert to support the steel liners and to carry a pair of rails. A cradle on wheels rode these rails to support the penstock sections in the tunnel and to carry them up into position from the portals.

At the top of the tunnels, a Lidgerwood 2-drum hoist powered by a 150-hp electric motor was securely anchored. Using a 10-part line, this hoist pulled the individual penstock

sections up
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turned it on edge, and placed it in the welding house. Here, Lincoln automatic welding machines powered by Lincoln generators completed the can by making the longitudinal welds between the three pieces. These machines make the weld in one pass inside and one outside.

Completed cans were set up on special Worthington power-driven roller beds to be assembled into 60-foot-long sections. Two of the cans were first butted together, and a Lincoln automatic welding machine was set in place at the top of the joint. Then, as the Worthington rollers slowly rotated the cans, the welding machine made the complete joint in a single operation. Eight of the cans were welded together in this manner to produce one of the 60-foot sections.

In handling the individual segments or even the cans, the big Manitowoc 4500 crane seemed out of proportion to the loads it lifted. But when it came to lifting one of the completed 60-foot sections off the rollers, even this big crane was not too large. Depending on wall thickness, these sections weighed from 65 to 95 tons each.

Since fabrication of the sections began long before the tunnels were ready to receive the liners, many of the big tubes had to be stored around the site. The crane transferred the sections from the rollers to Athey

One of the most useful machines in the tunnels is this rig, built over an International TD-14 tractor. Both its platforms are level when the rig is on the 30 per cent grade. The mast at the top is being used to take apart air piping used in drilling the tunnel. An Ingersoll-Rand utility hoist is mounted at the front of the rig.

CATERPILLAR REPORTS ON THE ILLINOIS TOLL HIGH

Caterpillar is first choic $4

Caterpillar
of compe

Massive Caterpillar D9 Tractor, owned by Western Contracting Corp digs in on the Illinois Toll Highway.

sections up the steep grade and into place. As succeeding sections were pulled into place, they were welded by an automatic welding machine and anchored to the footing blocks.

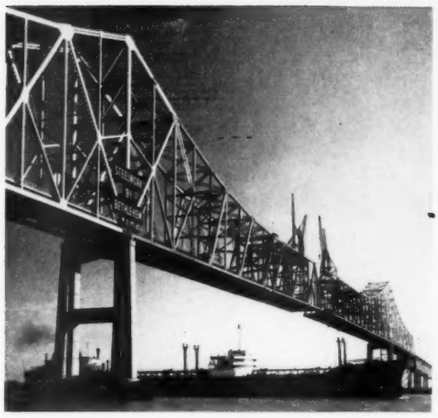
The concrete backing between the steel penstocks and the rock walls of the tunnel was pumped into place by a Rex Pumpcrete. The concrete was mixed in a Noble plant, transported to the tunnel portal in Gar-Bro 2-yard buckets and delivered to the Pumpcrete hopper by a crane.

Assembly and installation of the penstocks, recently completed, were supervised by B. Mark Johnson, erection superintendent for Morrison-Knudsen Co., Inc. With this important phase of the work now finished, crews are busy on the powerhouse, and the work is moving at a rate that promises to meet the schedule.

THE END

N. Y. Trap Rock news

New York Trap Rock Corp. has opened an administration building at Old Mill Road, West Nyack, N. Y. The H-shaped structure has 14,000 square feet of floor space for headquartering administration personnel formerly located in Newburgh, New City, and New York City, N. Y.



A 100-foot gap remains to be filled on the Greater New Orleans Bridge, the longest cantilever span in the United States.

Work nears end on longest U. S. cantilever bridge

Work is nearing completion on the Greater New Orleans Bridge, the main span of which is the longest cantilever span in the United States and the third longest in the world.

The Greater New Orleans Bridge, which crosses the Mississippi River to connect Orleans Parish and Jefferson Parish, has a 1,575-foot main cantilever span which rises 150 feet above high water. The anchor spans are 853 and 591 feet long, respectively, giving the bridge a total length of 3,019 feet. The approaches add 9,100 feet to the length.

Roadways will be 52 feet wide and there will be two 3-foot-wide sidewalks. Because of the difference in the length of the two anchor arms, the roadway of the shorter one will be floored with a 7½-inch-thick concrete slab to provide the needed additional weight to balance the cantilevered section. The remainder of the bridge will be floored with steel grating covered with bituminous concrete riding surface.

Bethlehem Steel Co. has fabricated 16,444 tons of steel for the main portion of the bridge at its Leetsdale and Rankin, Pa., works. This material was shipped down the Mississippi by barge to the bridge site.

When Bethlehem's $12,268,850 contract has been completed, the company will have also supplied and installed about 900 tons of eye bars, 100 tons of reinforcing steel, 1,400 tons of grid flooring, 10 tons of aluminum grating, 6,000 linear feet of handrail, 800 cubic yards of concrete, the entire deck drainage system, and all water and aerial navigation lights, and some electrical work.

Modjeski & Masters, Harrisburg, Pa., is the engineer and designer of the bridge.

Job site engine service provided at Glen Canyon

A modern "trading post" for diesel engines has been set up to assist contractors at the Glen Canyon Dam site. Cummins Engine Co., Inc., Columbus, Ind., and its Arizona distributor, Cummins Arizona Diesel, have obtained a 38-foot trailer, stocked it with $20,000 worth of parts, and placed it at the job site with two men, a field service manager and a parts manager, to provide inspection service and emergency service and parts.

on $415 million road project

Caterpillar-built equipment is at work on the Illinois Toll Highway than all similar machines of competitive make put together. Contractors agree, and have picked Caterpillar machines for this $415 million project. At production's peak last fall, the score was: 53% of all machines—68% of all track-type tractors, 39% of all rubber-tired tractor-scraper combinations (more than any other make) and 84% of all motor graders—more than 660 pieces of Caterpillar equipment in all! And this doesn't include the many Caterpillar Diesel Engines and Electric Sets on the project. These road builders have given the best tribute possible to Caterpillar quality. Follow their example and start standardizing on Caterpillar equipment.

Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

←For more facts, circle No. 208

A Blaw-Knox PF-90 bituminous paver-finisher lays a 1-inch-thick binder course—of ¾-inch stone, asphalt stone, and asphalt cement of uniform compactness and density—for this 5,583-foot-long street resurfacing job in Philadelphia, Pa.

Paver-finisher works fast on street resurfacing job

Moving at a rate of 20 fpm and laying 100 tons per hour, a bituminous paver-finisher operated by Armour Excavating, Inc., Philadelphia, Pa., recently resurfaced 245,652 square feet of four-lane roadway in northeast Philadelphia.

Before work could start on the $90,000 job, all street irregularities had to be covered with a perfect parabolic curve, with the crown of the street at the same level as the crown of all intersecting streets. At the same time, storm inlets had to be lowered sufficiently to channel water overflow, and manhole covers leveled with paving.

A Blaw-Knox PF-90 bituminous paver-finisher automatically measured and leveled the road through a calibrated manual control that permitted the operator to adjust mat thickness for the crown and wedge courses.

Because of the paver's 10-ton capacity hopper, trucks were able to move in and out fast, increasing the dumping speed and the over-all operation. Six Mack trucks were in continuous operation during each 8-hour project day. The trucks, requiring 50 minutes for each round trip, hauled 35,000 square yards of sheet asphalt from the Armour electronically-operated batch plant five miles away from the job site.

The base course was sprayed with a tack coat material that dried in one hour. The 1-inch-thick binder course was made up of ¾-inch stone, asphalt sand, and asphalt cement of uniform compactness and density. The final sheet asphalt—bar sand, asphalt cement, and limestone dust for filler—was kneaded by a Blaw-Knox Agitator to smooth consistency. It dried four hours after being laid. Aggregate and the final sheet course were placed at temperatures of between 275 and 325 degrees F.

Technical report treats formation of ice in soils

Research on the "Study of Ice Formation in Soils" is described in a technical report prepared for the Air Force and has been released by the U. S. Department of Commerce.

The study explored the possible application of new knowledge concerning melting and freezing of metals to the freezing of water in soil. The theory of nucleation of freezing and major phenomena of soil freezing are outlined in the report.

Sections also deal with soil-moisture freezing temperature as a function of particle size, cooling curves obtained from temperature observations in soil at different water contents, and development of a qualitative theory of soil freezing and heaving.

The $1.25 report may be obtained from the Office of Technical Information, U. S. Department of Commerce, Washington 25, D. C. The report is by Jackson, Chalmers, and McKay under contract with Arctic Construction and Frost Effects Laboratory.

←For more facts, circle No. 209

D9 (foreground) and DW21-No. 470 at work for S. J. Groves & Sons Co. on the Illinois Toll Highway.

Contractors agree:

1 *"We looked at them all—then bought Caterpillar."* **2** *"Our DW15s have worked three seasons with no down time."* **3** *"...best service of any earth-movers we've ever had."* **4** *"D9s are powerhouses, maneuverable even in the rough stuff."* **5** *"Been around Caterpillar equipment for some 32 years—and I really like it."* **6** *"We like the capacity of the LOWBOWLS—they'll go on through."* **7** *"Our No. 12s do a good job of maintaining the hauls."*

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

1 Harold Thompson, Central Engineering Co. **2** Emil Strunk, Strunk Bros. **3** Al Ensminger, Orr Construction Co. **4** Glen Roberts of McCarthy, Mass, Dillon **5** Ted Sliger, CKG Associates **6** L. E. Myers, Arcole-Midwest Corp. **7** Claire Hawn, Western Contracting Corporation

Air hoists help lower pipe for sewer project

When Douglas Brothers, Inc., Topeka, Kans., contractors first started working on a $1.5 million sewer job, it used a 30-ton crane to lower sections of concrete drain pipe into trenches. Each section of the 4×16-foot pipe weighed 7 tons, and this weight, combined with that of the crane, was breaking up the street and curbing.

The damage was so great, that after the drain pipe was in place and the hole filled, it was necessary to resurface the whole street. This tremendous added expense ran the cost way over the estimate, and unless a better method was quickly discovered, the

Workmen guide a 4×16-foot section of pipe as it is lowered by two Ingersoll-Rand EZ air hoists mounted on a contractor-designed steel frame. About 160 feet of pipe were laid per day for this $1.5 million sewer job in Topeka, Kans.

contractor's loss would run a quarter of a million dollars in the first month.

The contractor purchased two Ingersoll-Rand EZ long lift air hoists and designed a structural steel frame for mounting the hoists. At the same time, a small Ingersoll-Rand BU utility air hoist was bought to replace the "come along" that had been used to pull the sections into place for fit up.

The small BU hoist was used to pull the sections into place once the pipe was in the bottom of the 30-foot trench. About 160 feet of pipe was laid per day. But more important than the speed, pavement breaking and street resurfacing were eliminated.

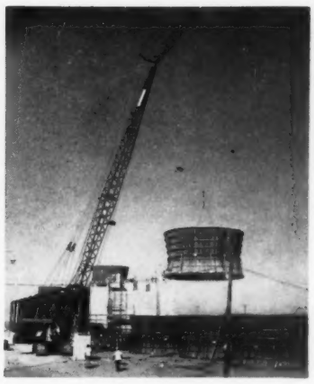
Power shovel output shown in BPR sound, color film

A 16-mm sound, color film, "Power Shovel Productivity", has been released by the Bureau of Public Roads. The film, based on studies conducted by the BPR, highlights the job conditions that determine the yardage output of power shovels on highway grading work, and demonstrates how production is affected by the speed of dipper cycle, size of dipper load, and frequency and duration of minor delays.

The 30-minute film may be borrowed from the Visual Education, Bureau of Public Roads, Washington 25, D. C. Prints may be purchased for $111.88 per copy. The price includes film, can, reel, shipping container, and postage.

For more facts, circle No. 210→

RAISING FANS on cooling towers and placing covers (far right) on Ingersoll-Rand preheater blowers at the 200,000 kw Agua Fria steam plant near Phoenix, Ariz., are the jobs of a Manitowoc Model 3000 crane equipped with a 100-foot boom and 35-foot jib. Betchel Corp., San Francisco, Calif., is the contractor on this project for the Salt River Power District.



CATERPILLAR REPORTS ON THE ILLINOIS TOLL HIGHWAY

First choice by count

	CAT %	NEXT HIGHEST %	TOTAL MACHINES*
All machines	53	18	1,239
Track-type tractors	68	21	499
Wheel tractors-scrapers	39	30	426
Motor graders	84	6	140

*Based on tally of machines as of October 1, 1957

DW21, owned by McCarthy, Mass, Dillon, is pushloaded by a D9 on a section of the Illinois Toll Highway near Elgin. LOWBOWL design, fast cycle time make DW21-No. 470 rig a favorite on this project.

Caterpillar manufactures a full line of earthmoving equipment—track-type tractors, wheel-type tractors, scrapers, motor graders, Traxcavators.

Each machine is scientifically designed to perform its function profitably and dependably, 24 hours a day, *every day*. Each machine is manufactured from the finest materials under the most exacting conditions to meet standards of quality that are the best in the industry. Each machine is exhaustively tested under a variety of demanding conditions, perfected before being placed on the market. Each machine is backed by a world-wide dealer organization ready to give matchless service. Each machine has the safeguard of a complete line of genuine parts, built to the same rigid specifications as the machine itself, and always available instantly at your dealer.

There is a good way to find out what Caterpillar quality and performance can mean to you. Let your Caterpillar Dealer demonstrate the equipment that's best for your job—*on your job.*

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

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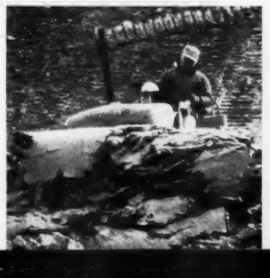
WORLD'S NO. 1 ROAD BUILDER

D6, owned by Central Engineering Co., 'dozes in muddy conditions on section of Illinois Toll Highway near Aurora.



DW20, owned by CKG Associates, is pushloaded by one of more than 50 D9s at work on the 187-mile road.

D8—No. 463 combination, owned by Arcole-Midwest Corp., needs its surefootedness in and out of swamp area.

No. 12, owned by S. J. Groves & Sons Co., grades an embankment. Earthmoving phase of road is near completion.

Working in the building excavation, a Manitowoc 3900 crane with 120-foot boom and 30-foot jib sets a third-floor framing beam for the tower of the Southland Center in Dallas. Concrete cofferdam columns retain the excavation walls.

Steel brought from the railroad unloading site is moved into position to be picked up by a crane. With four busy streets bounding the site, the steel is taken into the excavation for temporary storage.

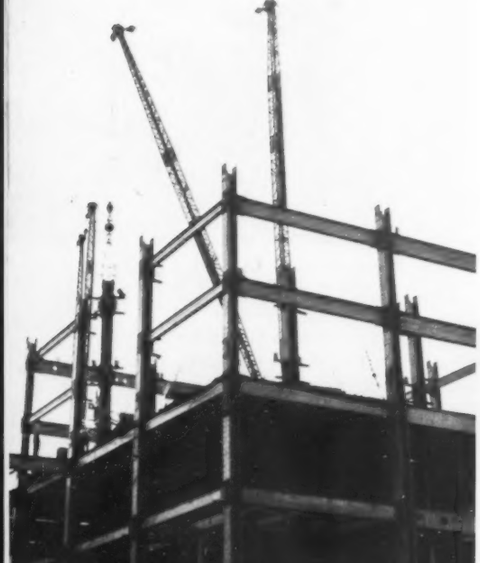
After the steel is set on timbers, it is picked up by a crane working in the excavation, 42 feet below street level. Steel is sorted out in the excavation and lifted into position as needed.

Cranes, derricks, carriers handle steel for high office tower

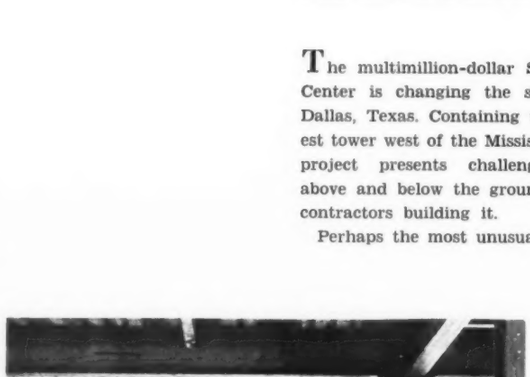
Drilled caissons allow excavation to be free of bracing; clear area is used for temporary storage of steel members

The multimillion-dollar Southland Center is changing the skyline in Dallas, Texas. Containing the highest tower west of the Mississippi, the project presents challenges both above and below the ground to the contractors building it.

Perhaps the most unusual part of the construction was the retaining wall of drilled caissons that enclosed the 42-foot-deep excavation. The tightly knit caisson wall, built up against the edges of four streets, permitted an excavation free of bracing. The clear working area not only speeded excavation, but al-

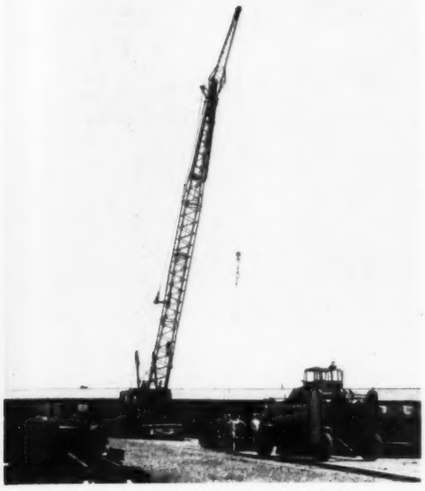


As steelwork rises above the fourth floor, one of the 25-ton guy derricks on the job takes over. Using a 100-foot mast and 90-foot boom it sets a 27.5-foot-long column section in place.

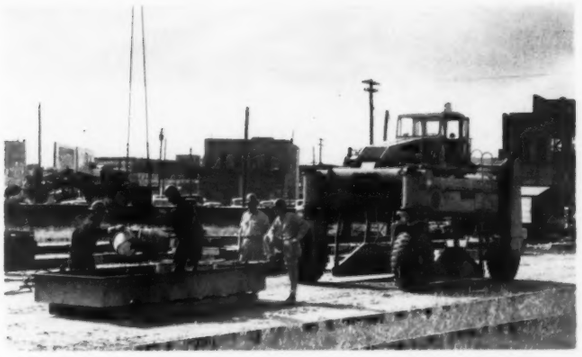


The guy derrick is operated by this American 3-drum hoist on the first floor. One cable controls the boom, the other, the main lifting line. The operator gets instructions by earphone from a man on the fourth floor.

Using a telephone setup, the man in the foreground gives instructions to the hoist operator on the first floor. Steelworkers wait for the framing beam to be lowered into place.



In the storage yard a Manitowoc 3000-B 40-ton crane with 100-foot boom and 20-foot jib swings a keg of Russell, Burdsall & Ward high-tensile steel bolts from the railroad unloading dock to a steel pan for transport to the site.



The Ross underbody carrier stands by to pick up the pan and take it to crews at the building site. Timbers support the steel pan so that it can easily be picked up by the carrier.

lowed plenty of room for the first phases of steel erection. This was particularly important since there was no temporary storage area for steel outside the excavation.

The structure, being built by Southland Life Insurance Co., will occupy the entire block surrounded by Pearl, Bryan, Olive, and Live Oak Streets in downtown Dallas. Its 42-story office tower, rising 550 feet above the street, will contain the new home offices of Southland Life in floors 4 through 18. A second 28-story tower will be occupied by the Sheraton-Dallas hotel. Plans call for an additional 32-story office tower to be constructed in the future.

The big Southland tower not only shoots up into the sky but also thrusts deep into the bedrock below the city. There are four full basement levels. Two contain an underground parking area capable of handling 2,500 cars per day. The other two levels are devoted primarily to mechanical equipment.

On the 42nd floor will be a heliport for the use of firms located in the building. Overlooking the city on the 36th floor will be an exclusive executive's club with a cantilevered window wall. Southland Center also contains a 78×200-foot ballroom that can accommodate 2,500 people. The building will have 28 high-speed electronic elevators and eight escalators, made by Westinghouse, to carry passengers swiftly to their destinations.

Plans and specifications for the project were prepared by Welton Becket & Associates of Los Angeles and Dallas. The consulting architect is Mark Lemmon of Dallas. Although much of the work has been let in separate contracts, J. W. Bateson Co., Dallas, is the general contractor. R. P. Farnsworth & Co., Inc., New Orleans, had the contract for the foundation and subsurface retaining walls. The American Bridge Division of U.S. Steel Corp. is furnishing and erecting the steel. Work is expected to be substantially complete late this year, allowing the first tenants to move into the building. Completion is scheduled for March, 1959.

(Continued on next page)

8 more jobs prove Foster Pipe Piles

Walnut St. Bridge, Wilmington, Del.
A. S. Wilkstrom Inc., Skaneateles, N.Y.

Florida Power and Light Co. Plant
Murphy Construction, Palm Beach

New York Thruway Connecting Link
Carlo Bianchi & Co. Inc., Framingham

Jersey City Sewage Treatment Plant
Garden State Constructors & Assoc.

Brazos River Bridge, Hearne, Tex.
J. A. Raines Construction Co., Okla.

Mississippi River Bridge, Lansing, Ia.
Brennan Brothers, LaCrosse, Wis.

Connecticut Turnpike Feeder
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(over 750,000' Spiral-Weld pipe piles)

speed up foundation piling work
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give lower finished cost

We'll supply all the pipe piles you need . . . right from Foster warehouse stocks . . . of economical spiral-weld pipe (up to ¼" wall) or regular Electric Weld and Seamless Pipe for piling. Pictured are only eight of hundreds of structures using Foster Pipe Pile. These jobs used Foster Spiral-Weld Pipe. Its greater strength, its high bearing load, and its greater ease of handling enabled the contractor to count on lower finished costs. We'll gladly help on your job calling for cast-in-place piles, working with you on specs and types of piling, and delivery schedules that will eliminate inventory and storage problems. On your next job, try us for that fast Foster service.

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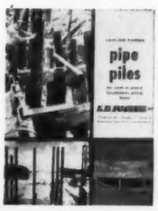

IMMEDIATELY AVAILABLE from Foster warehouse and field stocks. Every type of Pipe for Piling; Steel-Sheet Piling; H-Pile; Rail Pile, to schedule the right material for the job at the right time. Also complete stocks of Pipe (thru 36"), Valves & Fittings, Rail.

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(Continued from preceding page)

Retaining wall

One of the first steps in the excavation of the building was the drilling and pouring of the tightly compressed row of caissons that bordered the 490×220-foot excavation. This wall of concrete had three functions: it held back the earth that supported the adjacent streets; it prevented the water table—which was as high as 12 feet below street level—from penetrating the excavation; it permitted a clear excavation, free from any cross bracing.

The caissons were drilled 10 to 15 feet in rock and the concrete in the columns was heavily reinforced to withstand the pressures of earth and water. Adding to the strength of the wall was a 14-inch-thick concrete bond beam which joined the tops of the caissons. Every other caisson was poured in a 54-inch corrugated metal pipe. The caissons in between were poured in an unlined hole. This allowed the concrete to spread out and bond against the corrugated metal pipes on either side.

After about five feet of overburden was cleared off the building site, alternate holes were drilled for the pipes. At the start, it was necessary to use a 61-inch temporary casing to keep the hole from caving in. No casing was necessary for the lower part of the hole, which penetrated from 10 to 15 feet of rock. From top to bottom, the hole varied from about 47 to 52 feet. After the hole had been drilled, a Bucyrus-Erie 22-B crane set the metal pipe in the hole and placed a spiral of reinforcing steel in the pipe. After concrete was chuted from transit-mix trucks into the pipe, the temporary casing was pulled.

After the pipe caissons had been completed, the alternate caissons were drilled and poured. A temporary casing was used during this work, and it was pulled as soon as the hole was filled with concrete. Since there was no pipe to hold the concrete, it was free to spread out against the metal sides of the adjoining caissons. The tops of the columns were joined with a 14-inch-thick bond beam to complete the caisson wall.

The 163,000 cubic yards of common excavation was handled by draglines, one of them a Bucyrus-Erie 22-B, which loaded into 5-yard dump trucks. An Allis-Chalmers HD-6 front-end loader and a Cat D7 dozer also assisted in the excavation. In the lower levels of the hole, 10,000 cubic yards of rock was removed by drilling and blasting. As the digging got down below the water table, it was sometimes necessary to place grout against the sides of the caisson wall to keep the water out. In some places in the lower parts of the hole, sheet piling was driven against the face of the wall, and the space between the piling and the wall filled with grout to stop the leaks.

Steel erection

The clear excavation greatly helped the first phases of erecting the 16,000

A Manitowoc 3900 70-ton crane sets a column base plate on grade just above the concrete footing. A nonshrinking grout will be poured under and around the plate to hold it in position.

NEW

Ruggedness, power, operator's comfort, and all-around economy are featured in the new "440" Crawler.

WORTHY "STABLEMATE" of the POPULAR "420"

Every inch another "thoroughbred," the new John Deere "440" is a worthy "stablemate" of the ever popular John Deere "420," the busy, capable, and economical crawler that continues to merit the praises of efficiency-minded industrial users everywhere.

With a capacity for work that must be seen to be believed, combined with a nimbleness that cuts maneuvering time drastically, these tractors have the ability to squeeze more work out of every piece of equipment and to press more work into every hour.

New Heavy-Duty Track Assembly—Simple Adjustment

New strength . . . new durability . . . in power train and in 5-roller track assembly assure outstanding traction and greater lugging capacity. Wide choice of track shoe sizes, including a new 12-inch all-purpose shoe, assures traction aplenty on any type or combination types of industrial jobs. Clutch-brake steering assures "turn-on-a-dime" maneuverability.

New, Heavy Buffer-Type Front End

The strictly industrial design of the "440" is most evident in the husky front end—an immediate outward indication of the tractor's solid brawny strength throughout. No grille guard is required. Room is provided for front crankshaft-driven pumps.

Lounge-Chair Comfort for the Operator—Convenient Controls

New comfort and protection for the operator . . . new eye-centered controls and gauges . . . new easy view of work being done—all are here in full measure. Result—an easy-handling smooth-working unit that means more productive hours on the job, less operator fatigue.

New, Clutch-Direction Rev (Optional)

The new clutch-typ tion reverser is simpl to use, and effect touch of the hand and the tractor trav ward or backward same speed. It is no sary to shift gears.

tons of steel. Using effective methods to move the steel, and efficient crews to set it, the contractor topped out the 42-story tower late last year.

Because the caisson wall was bordered by city streets, the only place for temporary storage of steel was the bottom of the excavation. The main storage area for the steel was at a railroad siding about a mile from the project. Speeding the big steel members from the storage area to the project were two Ross underbody lumber carriers. These carriers, which could drop and pick up their own loads, kept crane work at a minimum. The carriers set their loads of steel down at several different locations on the job site. While work was being done on the lower floors, the carriers dropped the steel at the edge of the street. It was then picked up by a Manitowoc 3900 crane working from the bottom of the excavation. At other times, the carriers drove into the building area on a runway supported by the basement steel. A guy derrick then picked up the steel members and lifted them to the upper floors.

American Bridge used a Manitowoc 3900 crane to place steel on the lower floors. Working from the bottom of the excavation, the big crane lifted the steel up as high as the fourth floor. The heaviest member handled by the crane was a built-up H-beam column section weighing 24 tons.

Steelworkers guide a beam into place as it is lowered by a Manitowoc with 120-foot boom and 30-foot jib. Beams are bolted to column flanges on both top and bottom.

Guy derricks set steel

Work on the upper floors of the 42-story tower was handled with two 25-ton guy derricks with 100-foot masts and 90-foot booms. The derricks, powered by American and Clyde hoists, were jumped two stories at a time. Two more guy derricks placed the steel in the 28-story hotel tower. These 20-ton derricks were powered by P&H hoists.

All steel connections were made with Russell, Burdsall & Ward high-tensile steel bolts. Using Chicago Pneumatic impact wrenches, two-man bolting crews worked just behind steel erection crews. Compressed air for the wrenches was piped from a Chicago Pneumatic 600-cfm air compressor located on the floor of the excavation.

Floors and exterior walls

The majority of the upper floors of the main towers will have flooring of Milcor cellular steel. The steel flooring, manufactured by Inland Steel Co., will carry the electrical wiring and become the supporting form for the lightweight concrete floor. All floors below ground level are of standard concrete.

Two of the exterior walls of the office tower are of aluminum and glass construction. Mosaic tile, im-

A two-man crew uses a Chicago Pneumatic impact wrench for final bolting. A CP 600-cfm compressor in the basement powers the wrench.

...and Sure to Win Their Way to the Heart of Industry

JOHN DEERE "440" Industrial TRACTORS

Here they are . . . trim and eager . . . and literally "born" to save you money, whatever business you're in—the New John Deere Industrial Tractors.

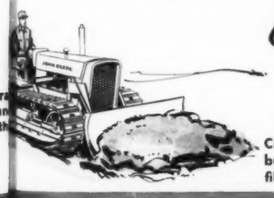
"Born" to save you money?

We could hardly put it better. For these are INDUSTRIAL tractors from top to bottom . . . ruggedly built from grille to drawbar . . . and designed, inside and out, to fill definite needs in industrial work of all types . . . to cut to rock bottom the costs of such jobs as earth moving, materials handling, sand and gravel work, maintenance, and many other—often specialized—jobs in contracting, construction, utilities, manufacturing, and public works.

Both, the John Deere Crawler and the John Deere Wheel-Type, are built around an amazingly efficient, precision-tooled John Deere engine, unmatched for delivering so much, for so long, for so little cost. Both have many construction features of hood, grille, frame, and either wheel or track assemblies that enable them to do more than their share of the day's work of pushing, pulling, lifting, digging, and hauling. Their clean, modern, functional design throughout makes them businesslike in operation, easy to service, and economical to maintain. A line of proved, matched working equipment gives them the versatility that industry demands.

Size up these modern tractors in the light of your requirements. It may be the start of making your power dollars go farther than you thought possible.

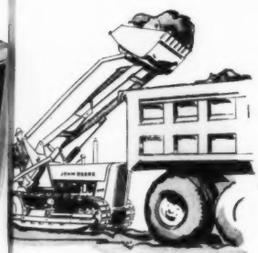
Completely Engineered for Industry



The John Deere Crawler is ideal for bulldozing and backfilling.

It's the highly mobile new "440" for use by contractors of all kinds, public utilities, states, counties, municipalities, manufacturing concerns, and many others.

Many optional features, including built-in power steering, add to the versatility of the Wheel-Type.



These tractors make loading and materials-handling fast, easy jobs.

Efficient, low-cost digging and excavating are assured.

...u can team up ...h-type "440" Industrial ...simple ...er with any of ...effect...ng line of match-...handy...d tested working ...trav...ment.

JOHN DEERE Industrial Tractors and Equipment

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ported from Italy, faces 7-foot-high spandrel panels. The relatively short end walls, which contain no windows, will be of mosaic.

William H. Oswalt is vice president, Director in charge of Project Development, in charge of construction for Southland Life. Keeping a critical eye on the progress of the work are Patrick T. Shipley, construction supervisor, and John L. Ballantyne, project engineer for Southland.

Jim Herndon is project manager for J. W. Bateson Co. On the subsurface work, handled by R. P. Farnsworth Co., Marvin R. Amacker was project superintendent. G. W. "Tex" Twinning held the same post for American Bridge.

THE END

"A few years ago they just counted the wheels and took it!"

Soil density control treated in HRB bulletin

Four papers on methods of soil density control are contained in the Highway Research Board's Bulletin 159.

The four papers in this bulletin take up methods of controlling compaction and methods for measuring soil density. Among the papers is one titled "A Study of In-Place Density Determinations for Base Courses and Soils." Another deals with "A Method for Controlling Compaction of Granular Materials". A third paper discusses scintillation methods for the determination of density and moisture content of soils and similar granular systems.

Copies of the bulletin are priced at $2.80, and may be obtained from the Highway Research Board, 2101 Constitution Ave., Washington, D. C.

Film on roof decking

A new 20-minute color movie with sound, titled "Roof Decks Unlimited—With Perlite", has been produced by the Perlite Institute. The film shows Perlite's fire resistance, insulation value, and design flexibility. Techniques for combining insulation and drainage fill on precast or structural concrete roof slabs are also shown.

The 16-mm film is available without charge to various groups in the building industry. It may be obtained by writing the Perlite Institute, 45 West 45th St., New York 36, N. Y.

M-H-F appoints three regional sales managers

The Massey-Harris-Ferguson Industrial Division, Massey-Harris-Ferguson, Inc., Wichita, Kans., has appointed three regional managers to head industrial sales of Work Bull products. John Vilven has been assigned to the Western region; Bill Talmage, who headquarters out of Wichita, has the Central region; and C. J. Workman is in charge of the Eastern region.

Rust-Oleum expands plant

New production and administrative facilities have been completed for Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

The manufacturing division now includes a three-story, 12,000-square-foot warehousing unit, as well as new ball mill equipment and a new automatic packaging system.

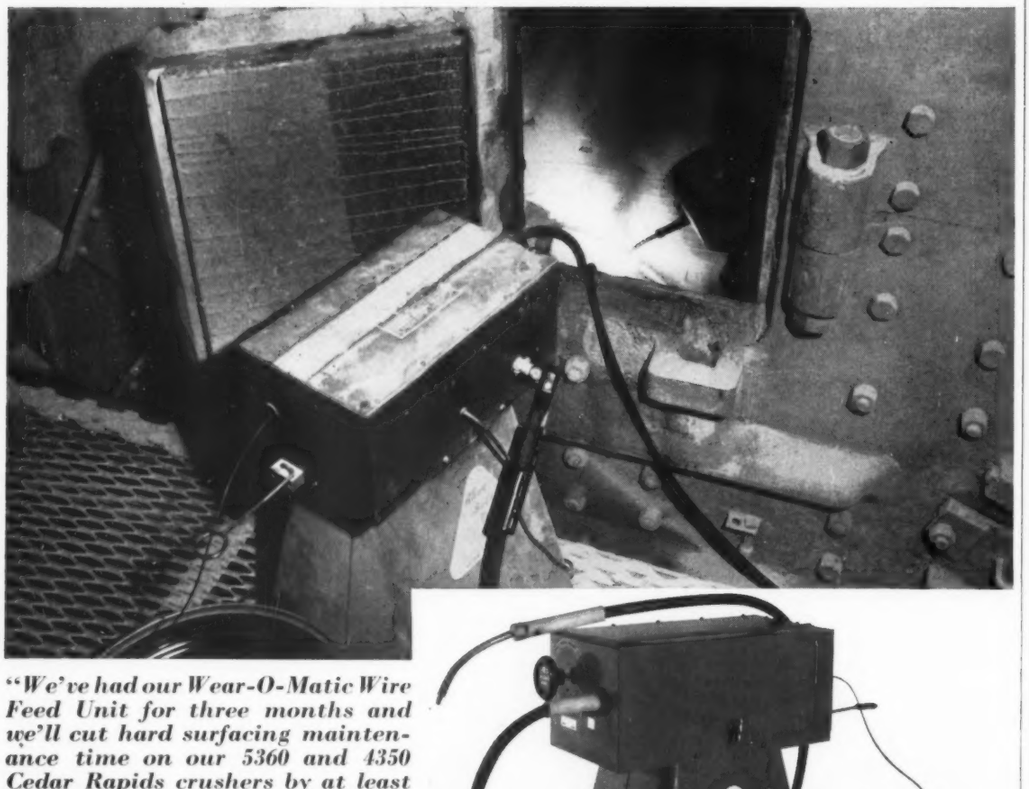
Harnischfeger acquires

Harnischfeger Corp., Milwaukee, Wis., has acquired the General Electric Co. designs for rotating-type welding machines using both gas drives and electric motors.

The acquisition enables the firm to provide a complete line of gas drives, motor generators, and transformer-type welders.

A list of conventions of particular interest to engineers and contractors in the coming months is on page 67.

"Saved 50% on Crusher Maintenance with WEAR-O-MATIC wire feed unit and wires."



U. S. Patent applied for.

"We've had our Wear-O-Matic Wire Feed Unit for three months and we'll cut hard surfacing maintenance time on our 5360 and 4350 Cedar Rapids crushers by at least 50%. For the first time it looks as though our weldor will be able to do the right kind of a job on these crushers with enough time left over to do an adequate job on the shovels and other equipment."

"In addition to a savings in time, we find that Wear-O-Matic wire deposits wear longer than the deposits of stick electrodes we have used. Also, our weldor likes to work with your machine and Payoffpak wires . . . it's the easiest to set up that he has ever used."

Maintenance Superintendent
Lincoln Stone Inc., Thomasville, Penna.

The customer has told only part of our story . . . may we add—The Wear-O-Matic wire feed unit sells for only $279.00 f.o.b. York, Pa. or El Segundo, Calif. For complete details write requesting Bulletin HS-123: Alloy Rods Company, P. O. Box 1828, York 23, Penna.

See Demonstrations • AWS SHOW • ST. LOUIS, MO., • APRIL 15-17

Alloy Rods Company

YORK 23, PENNSYLVANIA • EL SEGUNDO, CALIFORNIA

For more facts, use Request Card at page 18 and circle No. 213

ASEE plan answers need for engineering teachers

A four-point plan to increase the number of teachers for United States engineering schools has been presented by the American Society for Engineering Education to Dr. James R. Killian, Jr., President Eisenhower's special assistant for science and technology.

The plan calls for a substantial increase in the number of National Science Foundation fellowships for first-year graduate study in engineering; and a program of secondary grants to those who fail to qualify for full fellowships under the NSF program. It also asks for supplementary federal grants to holders of NSF fellowships who take part-time teaching assignments; and a program of awards to increase the financial aid to graduate students who combine teaching with their education and research experience.

The plan would serve to increase the supply of engineers and be an incentive for teaching careers.

Mexican building sheathed with curtain wall panels in red porcelainized steel

A $2 million, 20-story office building now being erected in Monterey, Mexico, will become one of that country's largest air-conditioned structures. The building will be sheathed with curtain wall panels of red porcelainized steel and stainless steel on three sides and masonry on the fourth side.

The porcelainized steel, consisting of 4×4-foot Vision Vent panels will be delivered from the Youngstown, Ohio, plant of the Truscon Steel Division of Republic Steel Corp. The panels, ready for installation with both inner and outer steel surfaces in place, have Fiberglas insulation within the 1½-inch thickness. The insulation, attached to the inside surface of the inner panel, becomes the inside of a sandwich, sharing that volume with air space that permits expansion and contraction, and allows any condensation to escape to the outdoors by way of "weep holes" at the bottom of each panel.

The individual curtain wall panels are 4×9-foot units, containing the insulated porcelain panel and window area within one continuous frame member. The units are attached to the exterior framework of the building with simple nut and bolt fastenings, and the sides make a tight fit with the other panels by means of a permanent sealant.

Koehring promotes two

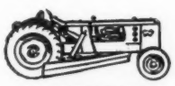
Koehring Division, Milwaukee, Wis., has promoted A. V. Cossens, formerly assistant sales manager, to the newly created post of product manager; and Kensal R. Chandler, from service manager to assistant sales manager.

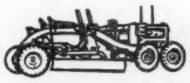
Cossens formerly served Koehring as a district sales representative and field service manager; Chandler had been in parts promotion, and a district sales representative.

HUBER-WARCO motor graders

5D-190 . . . world's most powerful

The Huber-Warco 5D-190 MOTOR GRADER has been designed to make faster passes and smoother cuts for more profitable grader operation. Features include: 195 h.p. diesel engine . . . torque converter . . . tail-shaft governor . . . power-shift transmission . . . and NO CLUTCH. The operator sets the desired speed and the tail-shaft governor maintains that speed regardless of load conditions. The Huber-Warco 5D-190 is "power-packed" to handle a tough grading assignment quickly and efficiently. See your Huber-Warco distributor for complete details.


MAINTAINER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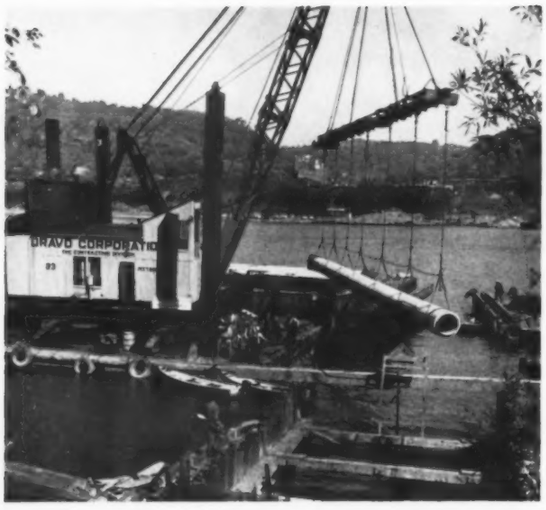
For more facts, use coupon, or Request Card at page 18 and circle No. 214



A derrickboat with a special 4-ton rig lowers a 96-foot pre-assembled length of pipe into the Allegheny River near Pittsburgh, during the Dravo Corp. job on a 1,100-foot long interceptor sewer line across the river. Six 16-foot sections, bolted together, cut down on the number of connections that had to be made under water by a diver.

Pre-assembly of pipe saves working time on new sewer line for Pittsburgh area

Partial pre-assembly of reinforced-concrete pipe sections saved a considerable amount of time during construction of a 1,100-foot-long interceptor sewer across the Allegheny River, six miles above Pittsburgh's Point.

Dravo Corp., Pittsburgh, built the line for the Allegheny County Sanitary Authority. The system, which will carry both sewage and surface water from the suburban Pittsburgh communities, connects with a sewer trunk which will run under downtown Pittsburgh on its way to the Woods Run treatment plant, three miles down the Ohio River.

Since all connections had to be made under water by a diver, Dravo pre-assembled ten 96-foot pipe sections, each of which was made up of six 16-foot sections. This cut down on the number of connections that had to be made under water.

The sections were delivered to Dravo's Neville Island plant by truck and shipped to the job site in open hopper barges. Most of the king-size sections were pre-assembled in the hopper barges, but others were assembled after the 16-foot sections had been transferred to deck barges. Each connection was made with bolts, which passed through lugs set in the ends of the sections. Rubber gaskets sealed the joints. Assembled sections were swung off the barge by a derrickboat using a 4-ton rigging. This supported each 30-ton pipe section in seven wire rope slings.

As the long sections were set in the trench, 8 feet below the surface of the river, the diver went to work. He issued instructions to the derrickboat crew by telephone. A second derrickboat was used to shift the pipe into the recessed end of the sections previously laid. Once the connection was made, the diver backed off the bolts of the pre-assembled section to allow for settlement. A pile driven at the riverward end of the pipe, and a cable from the pile looped around the pipe, held the line in position while the trench was backfilled.

SIX OF THESE JAEGER 600'S POWERED THE EXCAVATION DRILLING FOR NEW TIME & LIFE BUILDING, NEW YORK CITY

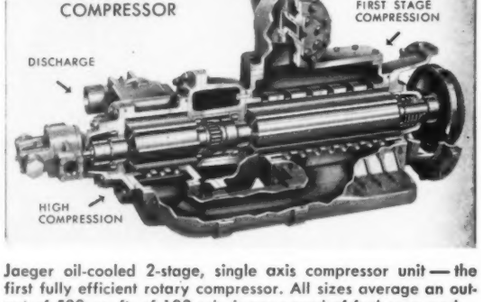
Jaeger gives you a lower, known cost for air

"MAKES" 600 CU. FT. OF AIR IN 1650 REVOLUTIONS ON 1.2 LBS. OF FUEL

Using the same GM 6-71 diesel engine, a Jaeger "600" delivers the same air volume at 1650 rpm that all other rotaries need 1800 rpm to produce.

In 8 hours' steady operation, a Jaeger averages 72,000 fewer revolutions, saving miles of engine piston travel and pounds of fuel. Because operation is always below the continuous horsepower curve, engine maintenance is lowest. As for the compressor unit, *many Jaegers have been operated more than 8000 hours without replacing a single vane.*

Similar high efficiency at low speed (1700 rpm full load speed compared with 1800 to 2150) is characteristic of Jaeger 125, 250 and 365 models. Check with any Jaeger user—or ask your Jaeger distributor for complete information that will help you cut your air costs on coming work.



Jaeger oil-cooled 2-stage, single axis compressor unit — the first fully efficient rotary compressor. All sizes average an output of 500 cu. ft. of 100 psi air per pound of fuel consumed.

THE JAEGER MACHINE COMPANY

701 Dublin Avenue, Columbus 16, Ohio

PUMPS • SPREADERS • FINISHERS • CONCRETE MIXERS • TRUCK MIXERS

For more facts, use Request Card at page 18 and circle No. 215

Reynolds promotes sales of aluminum shingle

Reynolds Aluminum Service Corp., Chicago, Ill., a subsidiary of Reynolds Metals Co., Richmond, Va., has signed a contract with International Aluminum Corp., Baton Rouge, La., for a five-year global sales program of four-way interlocking aluminum shingles and siding. They are being manufactured by International.

FMC Corp. assigns

The Florida Division of Food Machinery & Chemical Corp., Lakeland, Fla., has assigned sales engineer James Frasier as representative for Form-Crete all-steel prestressed-concrete forms. His territory includes the states of Florida, South Carolina, Alabama, Mississippi, and the Caribbean Islands.

Symons representative

The Symons Clamp & Mfg. Co., Chicago, Ill., has appointed Herb L. Priest Northwest sales representative for their complete line of concrete forms and forming hardware. His warehouse-office headquarters are at 318 N. E. Couch, Portland, Oreg.

Bridge contractor tests speed of pile hammers

While constructing a 1,240×24-foot roadway over the Des Moines River at Eldon, Iowa, Hanson Construction Co., Washington, Iowa, tested the driving speed of a diesel pile hammer and a free-falling drop hammer.

Both hammers drove 10-inch L. B. Foster steel bearing piles in six of 14 piers being placed for the bridge. Each pier has seven pile bents.

A McKiernan-Terry DE-30 diesel pile hammer drives a 10-inch L. B. Foster steel bearing pile to a minimum depth of 20 feet in 3½ minutes during work on a bridge over the Des Moines River at Eldon, Iowa.

The diesel pile hammer, a McKiernan-Terry DE-30, drove the piles to a minimum depth of 20 feet for the required bearing load of 32 tons in 3½ to 4 minutes. Driving time for the free-falling drop hammer ranged from 26 to 30 minutes per pile.

Hyster promotes Tucek

Richard C. Tucek has been made assistant tractor-equipment parts and service manager for the new Service Department established by Hyster Co. at its Peoria, Ill., plant. Tucek will be responsible for all parts and service operations for dealers served by the plant. W. Wistehuff will assist Tucek.

Business Advisory Council names 1958 chairman

S. D. Bechtel, president of the Bechtel Corp., San Francisco, Calif., has been named the 1958 chairman of the Business Advisory Council, U. S. Department of Commerce. Ernest R. Breech, chairman of the Ford Motor Co., Dearborn, Mich., was re-elected vice chairman of the council.

New members elected to the council are E. J. Thomas, president and chief executive officer of the Goodyear Tire & Rubber Co., Akron, Ohio, and Augustus C. Long, chairman of the Texas Co., New York, N. Y.

Worthington appoints section sales manager

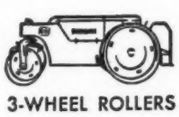
Worthington Corp.'s Plainfield, N. J., division has appointed Richard E. Hefler, Jr., sales manager of its Contractor's Pump Section. He will be responsible for marketing the firm's new line of self-priming pumps.

Hefler was formerly Chicago District representative for Worthington construction equipment.

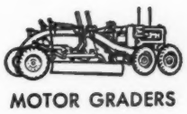
HUBER-WARCO
maintainer

grading inside a building framework

The Huber-Warco M-52 MAINTAINER offers many advantages, including the ability to work in tight places. Here the MAINTAINER is working inside a building framework where it would be impossible for a big grader to maneuver. The MAINTAINER is a 45½ h.p. unit . . . weighs almost 7,000 lbs. . . . and features a torque converter. Contractors like this versatile machine . . . with hydraulically controlled attachments it will also perform service as a bulldozer, lift-loader, broom, snow plow, berm leveler or patch roller. See your Huber-Warco distributor for a demonstration of the "profit-making" M-52 MAINTAINER.


3-WHEEL ROLLERS

MAINTAINER


MOTOR GRADERS

TANDEM ROLLERS

Products of HUBER-WARCO COMPANY, Marion, Ohio, U. S. A.

HUBER-WARCO COMPANY, Marion, Ohio, U.S.A.
☐ Send specifications on the Huber-Warco M-52 Maintainer.
Send specifications on: ☐ Motor Graders ☐ Tandem Rollers ☐ 3-Wheel Rollers

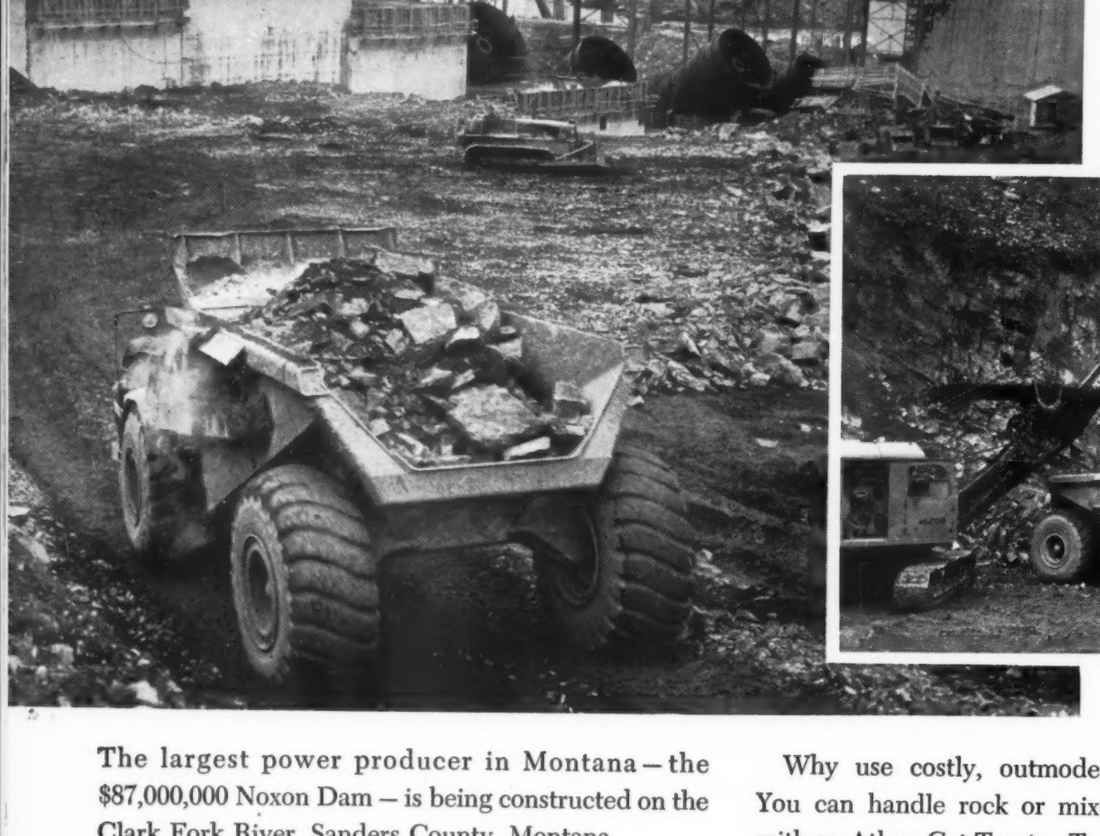
Name _____
Title _____
Company _____
Address _____
City _____ Zone ____ State _____

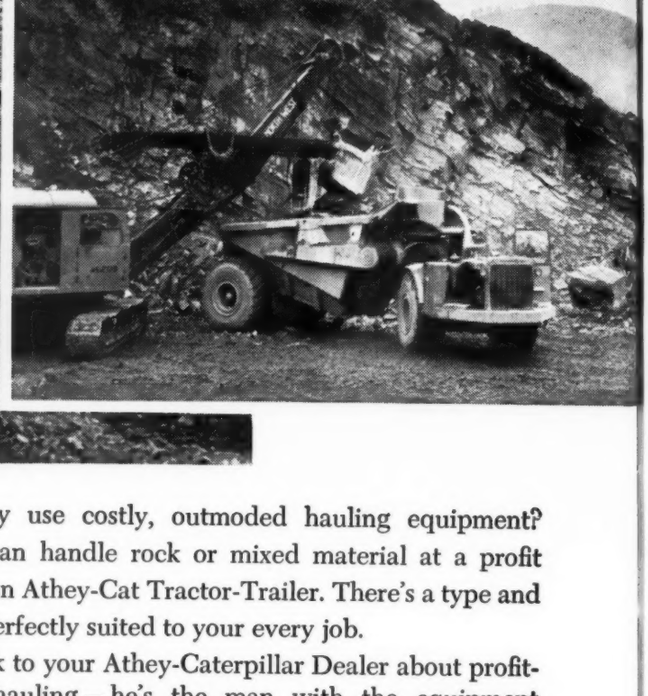
HUBER W WARCO

3- CE

For more facts, use coupon, or Request Card at page 18 and circle No. 216

500,000 Yards of Rock Being Moved for Montana Hydroelectric Plant





Bud King Construction Co Uses Six Athey-Cat Rear Dumps

The largest power producer in Montana – the $87,000,000 Noxon Dam – is being constructed on the Clark Fork River, Sanders County, Montana.

With a 400,000 kilowatt initial capacity, the powerhouse has provision for an eventual 500,000 kilowatts. Bud King Construction Co., Missoula, Montana, is working on the 500,000-yard rock excavation.

Six Athey PR21-Caterpillar DW21 Rear Dump Units working 8-hours a day on a 1½-mile haul, average 1800 yds. per day. Their fast hauling and quick, clean dumping ability cut non-productive time to a minimum.

These Athey-Cat Units are built to handle tough rock with ease, and the heated body attachments assure clean dumping of frozen or sticky material.

Why use costly, outmoded hauling equipment? You can handle rock or mixed material at a profit with an Athey-Cat Tractor-Trailer. There's a type and size perfectly suited to your every job.

Talk to your Athey-Caterpillar Dealer about profitable hauling – he's the man with the equipment "know-how." Or, write Athey Products Corporation, 5631 West 65th Street, Chicago 38, Illinois.

Athey

THE COMPLETE TRACTOR-TRAILER LINE . . . *BY THE LEADERS*

For more facts, use Request Card at page 18 and circle No. 217

Unloading bank-run fill for a highway widening job in Corcoran, Calif., is a Hobbs-Schonrock dump trailer which employs cables to raise the box for dumping. Four duals at the rear of the trailer creep up to bring the trailer into the dumping position.

Rear-dump trailers haul fill for road

The job of hauling fill is ordinarily done by scrapers or trucks, but dump trailers are being used for the work of hauling bank-run fill for a 3½-mile highway widening job in Corcoran, Calif.

To bring in the material from a borrow pit, located 9 to 12 miles away, Fortier Construction Co., Fresno, is using giant dump trailers which employ cables to raise the box for dumping. There is no fixed bed or framework between the rear axles of the trailer and tractor, and the four duals at the rear of the trailer creep up to bring the trailer into the dumping position.

Two sets of pulleys do the work on the Hobbs-Schonrock cable dump trailer. Two pulleys are incorporated in the special booster fifth wheel, and three are at the rear of the trailer. The arrangement of pulleys, with a single steel cable threading through them, reduces strain on any one length of cable. When the winch on the tractor begins taking up the cable, the booster fifth wheel goes to work.

First, an extended booster arm with a roller on the end pushes the trailer nose upward from underneath. Then the two long lift arms take over when the nose is pushed above the cam roller. The lift arms, fixed to the trailer's under-construction, tilt the trailer back and up as the rear axle is drawn toward the truck, shortening the wheel base. The lift arms and trailer form a free-moving A-frame.

C. I. T. appoints two

Walter M. Schilling and James A. Fitzgerald have been given new assignments in the metropolitan Philadelphia area for C. I. T. Corp., New York, N. Y. Schilling will take over the eastern Pennsylvania territory, making his headquarters in Abington. Fitzgerald will represent the firm in Philadelphia and in Bucks County.

The new estimate of the Federal-state share of the costs of completing the Interstate System has increased to $37.622 billion.

Bulletin studies manpower in highway engineering

Highway Research Board Bulletin 164, "Manpower Potentials in Highway Engineering", contains five papers, the first of which discusses the 1956 inventory of state highway engineering manpower.

The following two papers deal with a study of local road administration and engineering manpower, and graduate degrees in highway engineering as related to other majors in civil engineering. Turnover and factors in the retention of highway engineering personnel, and increasing productivity of engineers through the use of electronic computers are the subjects of the last two papers.

Priced at $1.20, the bulletin may be purchased from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

Conn. rural roads rank high in BPR survey

In a state-by-state comparison, the BPR found that Connecticut has 98 per cent of its rural roads hardsurfaced. Running a close second is Ohio with 97 per cent. Percentagewise, Ohio is ahead of the perennial giants in road development—New York 82 per cent; New Jersey, 81 per cent; Pennsylvania, 70 per cent; California, 64 per cent; and Texas, 52 per cent. Five states have less than one-third of their rural roads hardsurfaced.

Have you tried SEMI-AUTOMATIC HARD-FACING with STOODY WIRES?

Semi-automatic hard-facing is fast taking hold in all industry! Here's a process that *removes much of the labor of welding* and is 2 to 4 times *faster* than manual application. Weldors can see the weld—wires are fed bare; no submerging flux or flux dams are required. Welding is continuous, feeding from layer wound coils...no stub ends, no lost time changing electrodes. With higher speed there is lower heat input, less penetration of the base metal and reduced dilution of deposits...hence higher wear resistance than with manual electrodes of similar analysis.

WHAT CAN YOU HARD-FACE SEMI-AUTOMATICALLY?
Virtually all large parts now hard-faced manually ...crusher rolls, mill hammers, impact crusher rotors, shovel and tractor parts, tool joints, dredge pump impellers and casings, muller tires, etc.

ASK FOR DEMONSTRATION—Most Stoody distributors (check the yellow pages of your phone book) are equipped to demonstrate Stoody Semi-Automatic Hard-Facing *right on your job!* Ask your distributor to arrange a demonstration today!

STOODY SEMI-AUTOMATIC WIRES—Now available in 11 types for *maximum* wear resistance under *every* wear condition!

See our Booth No. 617 at the Welding Show, April 15-17, 1958

STOODY COMPANY
11904 East Slauson Avenue
Whittier, California

For more facts, use Request Card at page 18 and circle No. 218

A Michigan 27-yard scraper has one axle weighed at a time on the scale developed at Clark Equipment Co. by Charles L. Ellis, field engineer for Clark Equipment Co. In this instance it has been set up on the ground; it can be set in a trench in 30 minutes. The lightweight scale, with its own trailer, weighs a haul unit in about one minute.

Portable scale weighs one axle at a time

Contractors who would like a better check on just how much their haul units are carrying can take a cue from Charles L. Ellis, field engineer for Clark Equipment Co. He has developed a scale that seems to fill the bill. It is of lightweight aluminum and weighs about one ton with trailer. It's portable; it nestles snugly in its own trailer, which can be towed by a car or a pickup truck. It sets up in just 10 minutes on the ground; 30 minutes are needed if a trench is dug for the scale.

The scale is fast operating. About one minute is needed to weigh a haul unit. And the scale is accurate. In 40 separate tests, the scale measured predetermined steel weights and was exactly on the mark in 32 out of the 40. The maximum error of the eight was only 1.33 per cent.

Full-axle scale

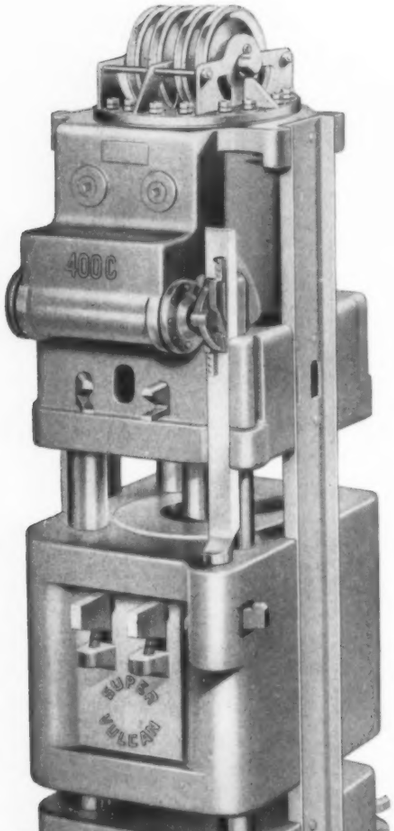
The scale is 12 feet long, 45 inches wide and 8 inches high. This 12-foot length permits the weighing of an axle load at a time, not merely one wheel at a time. Clark engineers found that single wheel scales would give readings varying up to 50 per cent simply by applying pressure to the steering wheel or brakes of the haul unit on the scale. In addition, it was hard to position the wheel on the scale. And it took too long—more than 15 minutes. This procedure required at least four readings. And these had to be added and the deadweight of the haul unit subtracted from the total. But the full-axle scale requires just two readings. These are added and the deadweight of the rig subtracted from the total. The estimated savings in weighing time is about 15 minutes per haul unit.

How it works

In operation, the scale works like this: the scale and its trailer are towed to the work site and the trailer parked over a flat surface. It need not be perfectly level; the scale is self-compensating. A winch and cable arrangement is turned to drop the scale out of the trailer. If only a few units are being weighed, ramps can be set so that each haul unit can roll right up onto the platform. If a series of tests is to be made, an 8 to 10-inch-deep trench is dug out with the moldboard of a motor grader so that ramps will not be needed.

The scale is direct reading. When the weight is on the platform, the platform pushes down on a lever on torsion bars. The torsion bars twist a certain amount and deflect a previously calibrated strain gage. The gage reads directly in pounds. Any weight up to 100,000 pounds can be measured. When the weight rolls off the scale, the gage goes right back to zero. There is no lag in the mechanism and no delay in weighing a series of axle loads.

The scale has another big advantage: its cost compares very favorably with standard truck scales already on the market.



QUALITY
in VULCAN Pile Drivers is no accident

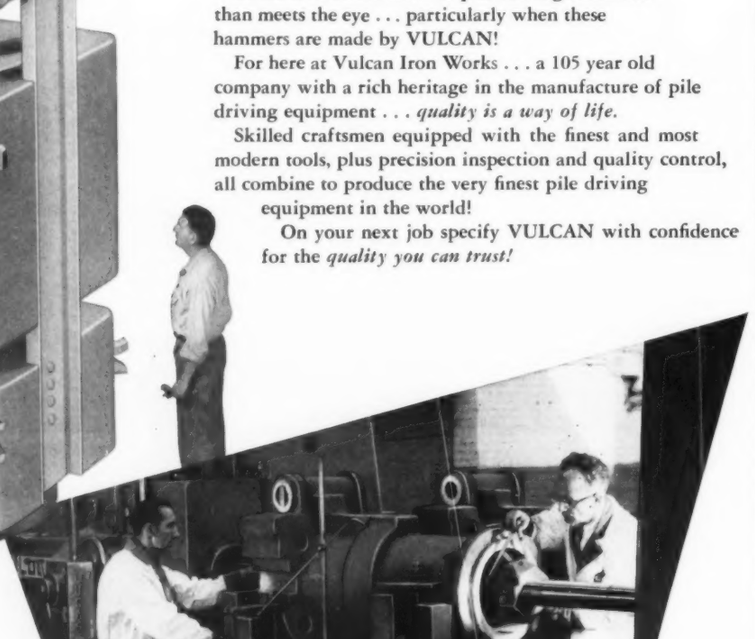
It is a CREED that extends through every step of design and manufacture!

There is so much more to pile driving hammers than meets the eye . . . particularly when these hammers are made by VULCAN!

For here at Vulcan Iron Works . . . a 105 year old company with a rich heritage in the manufacture of pile driving equipment . . . *quality is a way of life.*

Skilled craftsmen equipped with the finest and most modern tools, plus precision inspection and quality control, all combine to produce the very finest pile driving equipment in the world!

On your next job specify VULCAN with confidence for the *quality you can trust!*



Every step in the manufacture of VULCAN Pile Drivers and Pile Extractors is carefully checked.

Manufacturers of Pile Driving Hammers and Piling Extractors Since 1852

VULCAN IRON WORKS INC. 327 North Bell Avenue, Chicago 12, Illinois

For more facts, use Request Card at page 18 and circle No. 219

Scale has many uses

Clark uses the scale to rate its equipment accurately as new sizes come off the production line. It is also a big help in gathering data on engineering and performance. When equipment is demonstrated to contractors, the scale can be brought right out on the job so that contractors can see what loads are actually being carried.

Contractors can make good use of the scales, too, in evaluating equipment. The contractor can also relate size of load to loading time and cycle time to get more facts on which to base equipment purchases.

Weighing loads helps the contractor to determine the most economical loading time and method. For example, weighing quickly shows whether or not it is worth while to push-load those extra seconds to get a last yard or two into the pan for any particular haul distance. Comparing load weights with loading times using different pushers helps the contractor choose the right one for his job. And he can tell what gear is most efficient for both the scraper and pusher.

Job progress can be very accurately determined by the scale. This is important if a contractor wants to get paid as work progresses. Suppose he's getting paid at a rate faster than he's moving dirt and, toward the end of the job, estimates stop coming in. He still is subject to heavy expense for the rest of the job.

But if he's getting paid at a rate slower than he's actually moving dirt, he could run short of operating capital. The large payment at the end of the job may be too late. Most contractors prefer not to tie up any more capital than is necessary to perform a given job.

The scales can be a means of reducing this capital outlay.

Contractors who weigh their loads can get more work out of their scrapers. The scale lets them properly relate tire pressure and size with the load for the best combination of production with tire life. The result is less tire wear, higher travel speeds, shorter cycle times.

Of course, all the benefits of field weighing go down the drain if the weighing procedure is not done properly. But the scale is very simple to operate. With minimum care and attention, accurate results can be obtained. THE END

Petter Division moves to new location

The Petter Diesel Engine Division of Brush Aboe, Inc., is now located at 34-14 58th St., Woodside, Long Island, N. Y., not far from their old location at 60-07 39th Ave. in Woodside.

The move was made because expanding sales created the need for a larger space to house engines and parts as well as larger offices for the growing staff.

Always needed—always there
Give to your Red Cross

A Pettibone Mulliken hydraulic truck crane sets Blaw-Knox 10-foot forms for paving work on the main runway at Mather Air Force Base, Sacramento, Calif. Work on this $8 million project includes extending the main runway to 12,000 feet so that it can accommodate heavy Strategic Air Command planes. The job is expected to be finished by the middle of the year.

Prather Brothers' Cat D7 Tractor opens up road to remove steel culvert before laying pipe.

Along highway's right of way, heavy stump with extensive root formation is 'dozed out.

ONE-MAN GANG-D7

The one-man gang next removes old steel culvert and smooths out bed for pipe.

Final step, before covering and cleaning up, is laying the concrete pipe itself.

Fast operator and versatile Cat D7 Tractor with matching No. 7S Bulldozer, gang up to handle a multiple-chore road job on Highway No. 22 between Webster and Keswick, Iowa. Contract called for 'dozing tree stumps, brush removal, cleaning and then laying 640 ft. of 24-in. pipe, 582 ft. of 30-in. pipe, 198 ft. of 36-in. pipe and 84 ft. of 42-in. pipe.

This is the fourth Caterpillar crawler Tractor that Prather Brothers, of Russell, Iowa, has purchased. "We just wouldn't consider any other make," says Jack Prather. "We like this machine's stability—its new oil clutch—its good vision, and hydraulic track adjusters!"

CAT track-type Tractors are rugged performers. The heavy-duty Caterpillar Engine lugs without fouling on the heaviest jobs, and its horsepower is honestly rated. The D7's operating weight of approximately 34,000 pounds is well balanced for maneuverability. The hydraulically boosted steering and quick-reversing transmission keep production high and are easy on the operator. For a practical demonstration of what these better-built machines can do, call your Caterpillar Dealer TODAY for a demonstration; he's as near as your phone.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

THE YELLOW MACHINES WITH LOW TOTAL COST

For more facts, use Request Card at page 18 and circle No. 220

Weight reduction provided by high-strength steel saves cost of Carquinez Bridge superstructure.

The use of high-strength steel for the superstructure of the four-lane highway bridge being built across the Carquinez Strait in California is saving the State of California Highway Department an estimated $800,000.

The saving is possible because of the substantial weight reduction made possible by the high strength of the steel. Altogether, almost 30 million pounds of steel—all shop welded—is being used on this project.

An artist's sketch of the Carquinez Bridge, which will link the San Francisco Bay area and the Sacramento Valley, superimposed on a photograph of the area.

This includes nearly 6 million pounds of constructional alloy steel in the most highly stressed members and 11 million pounds of high-strength, low-alloy steel in other crucial members.

Fabrication and erection of the superstructure are being handled by the American Bridge Division of U. S. Steel Corp. It is using three types of submerged-arc equipment for welding: full automatic, and mechanized and manual semi-automatic. Some of the welds on the heavier box sections require as many as 38 passes to complete, and ⅜-inch fillets make up a large part of the work. On these welds, several manual Lincolnweld units are being used.

The welded design has made it possible to do the work with three basic sections: H-beams for tension members, box sections for members with normal compression, and internally supported box sections for members with heavy compression.

Financing the Havana tunnel project

At a time when money to finance a tunnel project was almost unobtainable in the United States, Cuba was able to obtain funds locally for its Havana tunnel project. (See CONTRACTORS AND ENGINEERS February, 1958, pg. 6.) The mile-long tube was financed by Financiera Nacional through its president, Dr. Oscar Garcia Montes.

Another factor of local pride is that the construction was handled satisfactorily and on schedule by native labor. No foreign technicians or imported skilled labor were required.

Scheduled for completion in March, 1958, the tunnel will have a far-reaching effect on the future development of Havana. Havana of the east, which is adjacent to the east end of the tunnel, is now sparsely populated. Estimates, however, indicate that within the next 25 years, this area will become the center of a city with two million inhabitants.

Construction Writers group formed at AED Convention

A noteworthy event took place in the press room at the 39th annual AED convention, when a group of editors and writers founded the Construction Writers Association, which will be incorporated in New York State.

Some 30 construction writers and editors, from 15 construction newspapers and magazines, adopted a constitution and bylaws and elected officers to serve during the first year of operation.

Heading the association is Edward Weilepp, editor of *Kansas Construction Magazine*, Topeka. James T. Jenkins, editor of *The American Road Builder*, Washington, D. C., is vice president and George E. Symons, editorial director, Scranton Publishing Co., New York City, is secretary-treasurer.

In rotary drilling, pulling a 100-ton, two-mile string of drill pipe subjects the drilling line to the terrific stresses imposed by fast acceleration, shock loads, bending and overwinding on drums. Only wire rope with the highest degree of quality in hardness, strength and fatigue resistance can be used, for toolpushers know that . . .

A quality rope is a safe rope

Whether you use wire rope in the field or in a factory, *safety is just as important to you.* When you buy "bargain" rope you bargain with safety. It can cost you more than the pennies you save. Buy on the basis of *quality*—buy Wickwire Rope.

For extra strength—buy Wickwire's Double Gray IWRC extra improved plow steel wire rope

WICKWIRE ROPE A CF&I PRODUCT

CF&I

LOOK FOR THE YELLOW TRIANGLE

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso Farmington (N. M.) • Fort Worth • Houston • Kansas City • Lincoln (Neb.) • Odessa (Tex.) • Oklahoma City • Phoenix • Pueblo Salt Lake City • Tulsa • Wichita • PACIFIC COAST DIVISION—Los Angeles • Oakland • Portland • San Francisco • San Leandro Seattle • Spokane • WICKWIRE SPENCER STEEL DIVISION—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) New Orleans • New York • Philadelphia

5736

For more facts, use Request Card at page 18 and circle No. 221

Bridge under construction to link Michigan highway with Mackinac expressway

Construction has started on a $3½ million bascule bridge near Saginaw, Mich., linking new U. S. 23 to the Straits of Mackinac expressway. The new bridge will carry relocated U. S. 23 over the Saginaw River.

The bridge will have one 185-foot-long bascule span flanked by two spans totaling 168 feet on the east, and two on the west totaling about 176 feet. This gives the bridge a total length of 529 feet. The bascule span will provide a 150-foot channel clearance for ships. The superstructure will carry two 29-foot-wide roadways separated by a 4-foot-wide median.

A $2,251,000 contract, let to Louis Garavaglia, Centerline, includes construction of the substructure plus channel dredging, pier excavation, construction of an operator's house, wiring, traffic signals, approach grading, and drainage structures. The American Bridge Division, U. S. Steel Corp., holds the $1,300,000 contract to supply the structural steel. The bridge is scheduled for completion by November 30, 1959.

HRB bulletin discusses concrete pavement tests

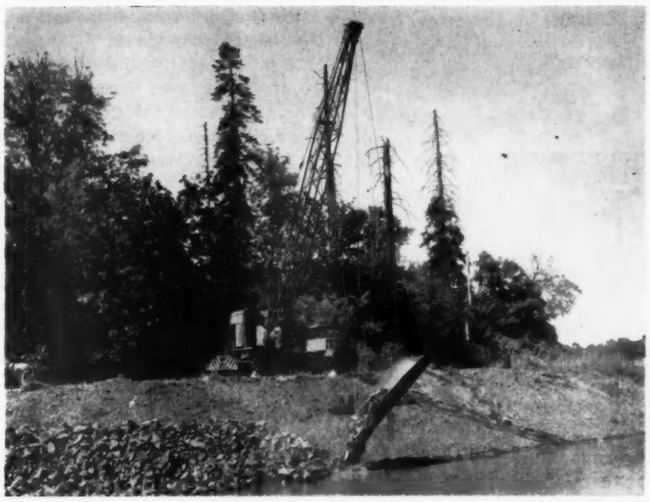
"Concrete Pavement Test Projects in Connecticut and Indiana", Highway Research Board Bulletin 165, contains two reports, the first of which gives the 23-year results of special tests and traffic on 8.35 miles of concrete pavement near Indianapolis, Ind.

Special design features incorporated in nine half-mile sections of pavement included different designs of joints and patterns of steel reinforcement. Seven other sections representative of the then standard design of concrete pavement in that state were interspersed among the specially designed test sections. The last pavement condition survey and detailed observations, made in 1954, supplied interesting data—before the highway was resurfaced and widened.

The other report describes the design, construction, and four years of the life history of a concrete pavement test section in Connecticut. The test pavement, in the eastbound roadway of the Wilbur Cross Highway between Hartford and Tolland, was constructed in August, 1952. The object of the test was to study relative performance of different designs of dowelled transverse joints. The special test section and some adjoining portions of the same highway were tested with a roughness indicator.

The $1 bulletin may be purchased from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

The Highway Trust Fund has received $1,158,198,021 in the first six months of this fiscal year from receipts and semi-annual interest payments.



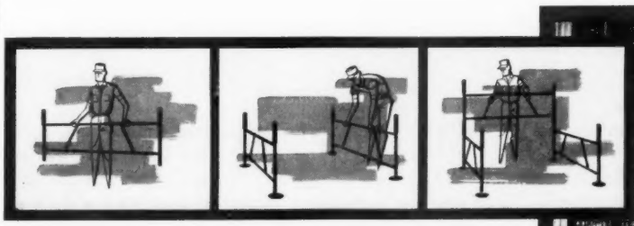
USING A ROCK SKIP made from half a boiler, a 25-ton Lorain Moto-Crane places riprap for a bank revetting job on the Long Tom River Flood Control Project near Monroe, Oreg. Altogether, 42,000 yards of river gravel was placed along the bank slope before 35,000 yards of riprap was placed for this U. S. Army Corps of Engineers project. The contractor rebuilt 68 locations along 23 miles on both banks of the river in 90 days under a $176,000 contract.

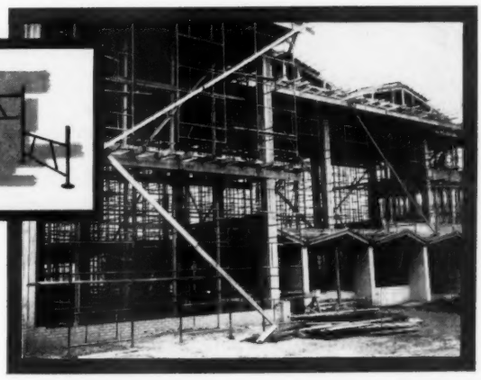
INCREASE YOUR PROFIT,
PRESTIGE AND POTENTIAL
in the Construction Industry...with

Brainard's 4S Engineered Shoring System

Brainard's 4S Engineered Shoring System was designed to fulfill a need in the heavy construction industry for a quick, simple and inexpensive method of shoring up concrete slabs in all kinds of industrial and commercial structures. There has long been a need in the construction industry for a *simplified* shoring system—*safe, sturdy* and one that could be erected with *speed*. Brainard's Engineered Shoring, the 4S System, meets all these requirements.

Brainard's system is composed of a minimum number of parts designed for all shoring applications. All parts can be reused. It has combined strength and versatility, with ease in handling for simplified and speedy erection. Brainard's Shoring System can save substantial construction money for you.





Brainard's Engineered Shoring System is delivered to the job site in components and can be quickly erected by one man. Save time and money with Brainard.

A few select franchises are available for qualified distributors interested in handling this profit line. Write to

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SHARONSTEEL

Brainard Steel Division, Sharon Steel Corporation
Griswold Street, Warren, Ohio
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Names in the news

Harold W. Stillman, Jr., assistant to the managing director of American Concrete Pipe Association.

Stillman joins the ACPA

Harold W. Stillman, Jr., has joined the staff of the American Concrete Pipe Association as assistant to the managing director. Stillman had been associated with the U. S. Engineer Corps and construction contractors.

He is a junior member of the American Society of Civil Engineers and a member of the Chicago Chapter of the Illinois Society of Professional Engineers.

Panero promotes

Robert M. Pope has been appointed chief civil engineer for Guy B. Panero Engineers, New York City.

Pope recently completed an assignment as project manager of a public works development program for the government of Iran, which involved more than 400 projects including the engineering of water and sewage facilities for major cities and ports.

(Left to right) Gen. B. B. Talley, Gerald A. O'Connor, and Edwin T. Morris, new vice presidents of Raymond Concrete Pile Co., New York City.

Raymond elects three new vice presidents

The Raymond Concrete Pile Co., New York City, has elected three new vice presidents: Brig. Gen. B. B. Talley, U. S. Army (ret.), Gerald A. O'Connor, and Edwin T. Morris. They will make their headquarters in New York.

Gen. Talley, with the company since 1956, has been in charge of construction of Brasilia, the new capital of Brazil; O'Connor has supervised numerous major projects in the Venezuelan area during his 29 years with the firm; and Morris, with the company since 1937, has supervised construction of the Great Lakes Steel ore dock at Zug Island, Mich., San Juan Steam Electric Plant in Puerto Rico, and the Free Port of Monrovia, Liberia.

Herschel B. Miller, Houston district manager since 1951, has been named district manager of the Atlanta office. He succeeds Herbert Dean Oliver, who has retired.

Jamie H. Kerr, Jr., formerly assistant district manager of the firm's New Orleans office, replaces Miller in Houston. William M. Mooney II, who has been assisting Oliver in Atlanta, is now New Orleans assistant district manager.

M-C&S elects executive

Herman B. Block has been elected an executive vice president of Merritt-Chapman & Scott Corp., New York City, to succeed Rolland O. Baum. Baum has been advanced to the newly created post of executive vice president and general manager of Tennessee Products & Chemical Corp., Nashville, Tenn., a Merritt subsidiary.

Block is now responsible for trade relations, procurement, and insurance. He is succeeded at his former post by Louis Goldberg, vice president for procurement.

Engineering firm names Dickman vice president

Franklin J. Dickman, vice president of United Engineers & Constructors, Inc., Philadelphia, Pa., and head of the firm's New York office for the past 20 years, has been elected a director of the firm.

Dickman joined the firm of United Engineers in 1937.

Pomeroy Co. elects three

J. H. Pomeroy & Co., Inc., San Francisco, Calif., has elected chief estimator Walter P. O'Farrell a vice president. Chief engineer of overseas support operations Earl T. Van Geem, has been made an assistant vice president of foreign operations for the international contracting and engineering firm.

Philip A. Ray, formerly general counsel of the U. S. Department of Commerce, has been elected a vice president and director of the firm.

Two New High-Capacity Asphalt Plants Announced by Barber-Greene

These two new continuous asphalt plants give greater versatility than ever before available. The same mixer, without alteration, may be used with any combination of plant components to produce all types of mixes—from the simplest cold mixes to the highest types which must meet the most rigid specifications. Model 847 is for high capacity. Model 848-A is for extra high capacity.

It is only necessary to transport and operate the components required for the job:

For cold mixes: Mixer + calibrated feeder

For intermediate hot mixes: Mixer + calibrated feeder + dryer

For high-type mixes: Mixer + gradation unit + dryer

Plant with four-bin gradation unit for production of highest type mixes. This multiple-aggregate plant is available in both sizes.

Cold-mix plant, available in both sizes, consists of mixer and calibrated feeder. Dryer and gradation unit may be added later.

Both models offer these advantages:

- Unequaled versatility as described above.
- New hydraulic clamshell discharge gate saves truck time, prevents segregation.
- Transfer pump assures constant head of asphalt for metering pump, eliminates need for asphalt storage tank on mixer.
- Interlocked aggregate and asphalt feeds assure constant, correct proportioning.
- Truck pit no longer required.
- Highly portable plant components allow fast travel between jobs, pay off in more days of operation per season.
- Erection is merely a matter of spotting the units at the plant site and dropping the jacklegs.
- New, easier calibration of single-aggregate and cold-mix plants.

57-12-A

Write for information on these two new flexible high-capacity asphalt plants.

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

For more facts, use Request Card at page 18 and circle No. 223

Firm receives NSC award

The Morrison-Knudsen Co., Inc., sponsoring contractor on the nearly completed Dwight D. Eisenhower Lock of the St. Lawrence Seaway Project, was cited for an outstanding record in accident prevention on the job by the National Safety Council, which conferred the NSC Honor Award on the firm. It was also cited by its insurer, Employers Mutuals of Wausau, Wis., which insures 90 per cent of Seaway projects on the American side.

During 1957, the firm's accident frequency rate was more than 80 per cent below the heavy construction industry average.

Hunkin-Conkey elects

The Hunkin-Conkey Construction Co., Cleveland, Ohio, has elected Paul R. Smith, former chief engineer of the heavy-construction division, a vice president of the firm. In his former post, Smith was connected with such projects as the expansion of Republic Steel Corp.'s Cleveland plant, the Dyberry Dam in Pennsylvania, and the expansion of U. S. Steel Corp.'s plants in Youngstown, Ohio, and Chicago, Ill.

Holmes & Narver, Inc., to have 25th anniversary

Holmes & Narver, Inc., engineering and construction firm of Los Angeles, Calif., will celebrate its 25th anniversary this year. The firm's employees have presented a silver testimonial plaque to founders James T. Holmes, president, and D. Lee Narver, chairman of the board, to mark the anniversary year.

Stone & Webster appoints

John W. Crocker, a member of the mechanical division staff of Stone & Webster Engineering Corp., New York, has been appointed manager of the firm's district office in Houston, Texas.

Crocker, who has been with the firm since 1954, has had experience in the design and construction of pulp and paper mills, and is a consultant on power plants and the engineering and erection of industrial facilities.

Kaiser Co. elects three

Stanley Kimball, E. R. Ordway, and Sam Ruvkun have been elected vice presidents of the Henry J. Kaiser Co., Oakland, Calif., and are assigned to key executive posts in the firm's newly organized Heavy Construction Division. The division is responsible for all overseas projects of the company.

ASCE has new officer

Otis D. Gouty has joined the headquarters staff of the American Society of Civil Engineers as assistant to the secretary. His new duties are primarily concerned with the student chapters and local sections of ASCE.

Jack H. Davis, new engineer-manager of the Dallas-Fort Worth Turnpike.

Texas Turnpike names Davis engineer-manager

The Texas Turnpike Authority has promoted Jack H. Davis to engineer-manager of the Dallas-Fort Worth Turnpike. Formerly engineer in charge of maintenance and operations for the turnpike, Davis replaces J. C. Dingwall, who returned this year to the Texas State Highway Department as assistant state engineer.

James G. Allen, formerly Dingwall's administrative assistant, has been promoted to secretary-treasurer.

McKee & Co. elects officer

H. R. Moorhouse, secretary and treasurer of Arthur G. McKee & Co., Cleveland, Ohio, has been elected executive vice president of the firm. He will continue as treasurer.

C. H. Ganzenmueller has been made secretary.

Pa. Highways appoints

Jean C. Esh and Leo C. Burrows have been appointed bridge and highway design engineers, respectively, for the Pennsylvania Department of Highways. Burrows will have headquarters in Haverford, and Miss Esh will work in Harrisburg.

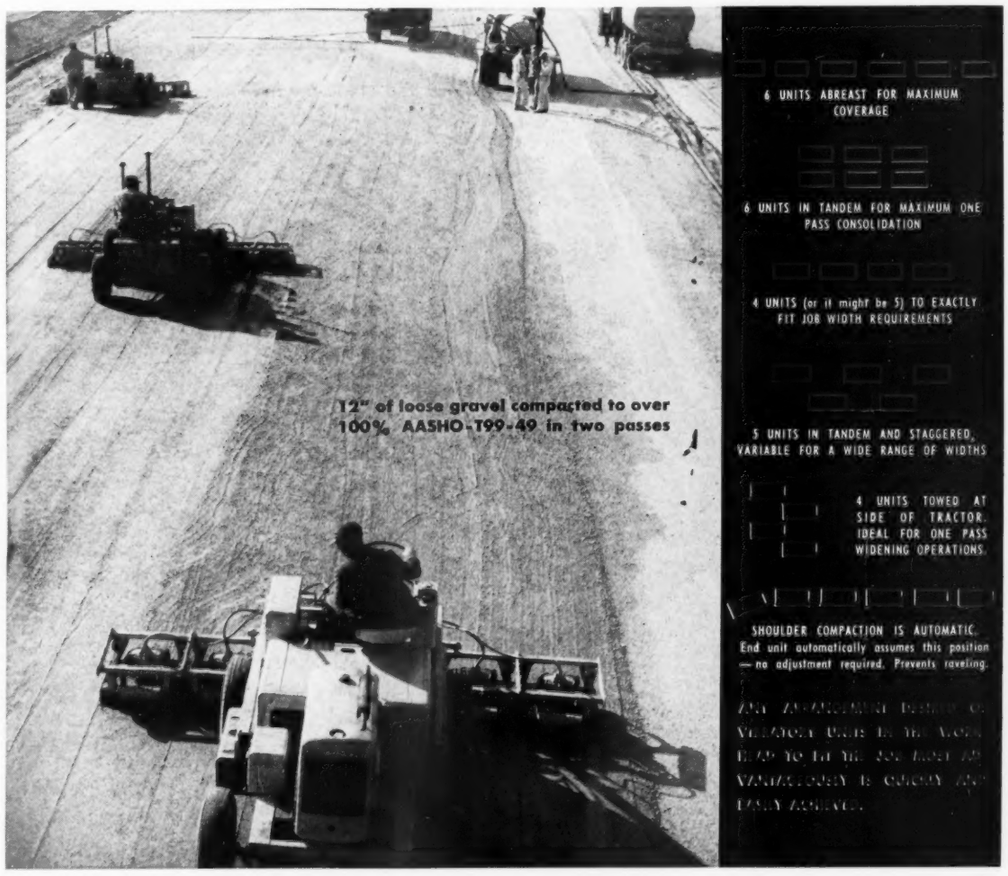
NCP elects Robinson

G. A. Robinson, electrical and mechanical engineer, has been elected president of the National Clay Pipe Manufacturers, Inc., Cleveland, Ohio. He succeeds D. M. Strickland, who is now a vice president and consultant to the board of directors.

Haas & Haynie appoints

Jackson Moffett has been appointed vice president of sales for Haas & Haynie, general contractor, San Francisco, Calif.

Moffett joined the firm in 1953.


12" of loose gravel compacted to over 100% AASHO-T99-49 in two passes
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6 UNITS IN TANDEM FOR MAXIMUM ONE PASS CONSOLIDATION
4 UNITS (or it might be 5) TO EXACTLY FIT JOB WIDTH REQUIREMENTS
5 UNITS IN TANDEM AND STAGGERED, VARIABLE FOR A WIDE RANGE OF WIDTHS
4 UNITS TOWED AT SIDE OF TRACTOR. IDEAL FOR ONE PASS WIDENING OPERATIONS.
SHOULDER COMPACTION IS AUTOMATIC. End unit automatically assumes this position — no adjustment required. Prevents raveling.

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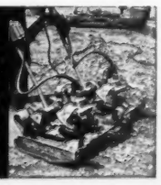
MORE OF THEM USED ON AMERICAN TURNPIKE PROJECTS THAN ALL OTHER PAN-TYPE COMPACTORS COMBINED!

The reason is two-fold. 1. The JACKSON, with its tremendously powerful vibratory action, provides 100% of specified density of any material normally used in macadam base or sub-base courses in the shortest possible time. Each unit in the workhead supplies 4200 THREE-TON BLOWS per minute. 2. IT'S FAR MORE VERSATILE THAN ANY OTHER COMPACTOR, ideally adjustable to each and every job requirement. Coverage is what you want it to be, up to 13', 3". Any arrangement of the compactor units, as indicated at right, is quickly attainable. With this machine you can compact areas others can't touch, a factor that eliminates lost motion and saves a great deal of time and money. And, of course, it is equally effective on all types of granular soil fills and similar projects. By all means inspect it at your Jackson distributor.



Any of the compacting units in the Jackson Vibratory Compactor workhead can be fitted with operating handle and used exactly like the nationally renowned Jackson Manually Guided Compactors. Perfect for getting into odd spaces and close to walls, etc. — spots that can't be reached by other equipment. One man with a twin hookup of two of these units will compact up to 1,200 sq. yds. of granular soils in 6" layers per hour.

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ARBA convention pledges fight to keep Road Program on schedule

Battle on "stretch-out" and trust-fund diversion gains momentum; backing is given to bill for increased money for ABC program

Conflict over the time needed to complete the Road Program set off a blaze of verbal fireworks, at the 56th annual convention of the American Road Builders' Association, that is almost certain to have an effect on legislation in Congress this year.

The fuse was ignited by Federal Highway Administrator Bertram D. Tallamy at the opening general session of the four-day convention in the Sheraton-Park Hotel in Washington, D. C. Speaking before the 1,600 delegates at the January 20 through 23 convention, Tallamy reviewed progress on the Road Program to date, then pointed out that it might take 20 years, instead of the estimated 13, to finish the 41,000-mile Interstate System. His reasons: the cost of road construction has gone up, and the government cannot spend more per year than is taken in by the Highway Trust Fund.

Sen. Gore hits stretch-out

An immediate blast at this idea came from Sen. Albert Gore (D., Tenn.) chairman of the Senate Subcommittee on Roads, who also lashed out against proposals to divert money from the trust fund, and at the lag in actual highway construction.

Declaring that, if the work took 20 years, the planned system would be outdated before it was completed, Sen. Gore pledged himself to an "unrelenting battle against such an unreasonable, uneconomic, dangerous, costly 20-year stretch-out".

The senator was ready with a fighting plan to help the program to completion on time. In essence, it calls for the Highway Trust Fund to be used only for highway construction, appropriation of enough money to keep the program on schedule and, if necessary, the repeal of the Byrd amendment which limits annual highway spending to money available in the trust fund.

Gore also rapped what he called the "misleading" status reports on the Interstate program by the Bureau of Public Roads. He pointed out that figures supplied by the bureau are in "so-called project miles instead of facility miles", and that "a mile of highway may be counted two, three, or even more times; once as a grading project, again as a surfacing project, etc." (In actual fact, according to the bureau, only a very small part of the mileage authorized has been opened to travel.)

Inside the grade separation structure at the Armco booth is an Isetta 300. Not quite inside the car is Audrey Covell, borrowed for the moment from the Washington, D. C., Highway Department booth.

the profit you left behind

There it lays in the dirt. Your machines and equipment ground off in the grit, pounded off in the rock. You can almost see the wear that shut down your machines too soon . . . idled your men too long . . . bled your profits too much.

Is there *one* material, *one* metal that can stop this excess wear waste?

One? It takes many alloys, engineered alloys (some you may never have heard of). It takes a list of Amsco® Alloys to span the entire range of wear applications.

Amsco Alloys that can work a full shift where severe abrasion knocked out toughest metals in three hours. Amsco Alloys that can belt rock all day, and work tomorrow, too. Amsco Alloys that can work any abrasion-impact combinations you face and still resist the wear, stop the waste . . . save the profit in the job.

When you need the *best* alloy for the job, you'll find it first among the Amsco Alloys . . . engineered by America's largest producer of cast manganese steel and specialists in wear-resistant metals.

AMERICAN Brake Shoe COMPANY

AMSCO

American Manganese Steel Division · Chicago Heights, Illinois

For more facts, use Request Card at page 18 and circle No. 225

One of the popular booths in the Materials and Services exhibit at the convention was the Columbia Southern Booth, where Joan Daly drew plenty of attention with a phono-mimic delivery on calcium chloride.

Trust fund "raids"

Rep. George H. Fallon (D., Md.), another opening-session speaker, presented a solid front with Sen. Gore against what he termed "raids" on the fund by the Department of Labor. Sen. Gore scored the "misapplication" of the fund, which began with the withdrawal of funds to pay "part of the cost of the operation of the Department of Labor". This year, the senator pointed out, "the Administration proposes to grab about $68 million" from the fund.

Rep. Fallon, declaring that highway advocates in Congress were greatly disturbed at the $200,000 in trust-fund money used to pay for the administration of the Davis-Bacon wage provision of the Highway Act, said that this diversion was "peanuts" compared to what is proposed in the budget for fiscal 1959.

This proposal calls for $68 million to be taken from the trust fund: $32 million in federal tax on aviation gasoline would go to the general treasury; $32 million would be spent for forest and public lands highways that are now financed from the general treasury; $3.75 million would go to the Treasury Department for administering the trust fund; and $250,000 would go to the Department of Labor for administering the Davis-Bacon provision.

"My opinion of the budget proposal", Rep. Fallon said, "can be summed up in one brief sentence: 'Don't tamper with the Trust Fund.'" Sen. Gore was equally emphatic. "I object to these raids on the Highway Trust Fund in order to make pretense of a balanced budget", he said, adding that if the diversion was approved there would be other suggested diversions and instead of having a Highway Trust Fund "we will have a grab bag which might be a useful gadget for the Director of the Bureau of the Budget but of diminishing value for the building of highways."

Calls for more money

Also standing with Sen. Gore on keeping the Road Program on schedule, Rep. Fallon pointed up the need for additional appropriations. To this end, he asked support for the bill he introduced in Congress that would step up spending on primary highways, farm-to-market roads, and city streets. Federal aid for this ABC program is pegged at $875 million in 1959, and Rep. Fallon's proposal is to increase this amount by $25 million yearly, bringing it to $900 million in 1960 and $925 million in 1961.

The increase, Rep. Fallon pointed

(*Continued on next page*)

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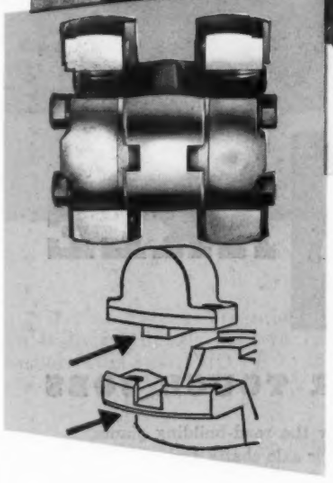

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MECHANICS Roller Bearing UNIVERSAL JOINTS increase the Safety factor in power transmission lines, because heavy machined KEYS and corresponding keyways, not bolts nor screws, transmit the torque.

The only function of the cap screws is to hold the bearing assemblies in place.

This KEY method of driving has the highest safety factor, transmits the most torque with the least weight, and avoids costly breakdowns resulting from driving through bolts or screws that work loose.

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For Cars, Trucks, Tractors, Farm Implements, Road Machinery, Industrial Equipment, Aircraft

For more facts, use Request Card at page 18 and circle No. 226

The Construction Products Division of Sonoco Products Co., Hartsville, S. C., exhibits its line of Sonotubes. Ruth Reynolds, a delegate's wife, checks to see if there is something to pass along to her husband.

(Continued from preceding page)

out, is needed if road construction is to be kept on schedule, since increased costs of construction land, materials, wages, and the greater traffic volume on highways will bring the cost of the program to $40 million instead of the $2.75 million originally predicted by Congress.

Other speakers

Other legislators at the convention also laid emphasis on completing the Interstate System as soon as possible, though all were not entirely unsatisfied with progress to date. Sen. Dennis Chavez (D., N. Mex.), chairman of the Senate Committee on Public Works, while pleased that construction "has begun to roll", felt that "greater progress should be made".

Sen. Francis Case (R., S. Dak.), a member of the Senate Subcommittee on Roads, and C. R. McMillan, president of the American Association of State Highway Officials and Chief Highway Commissioner for the South Carolina State Highway Department, also touched on the lag in construction. Sen. Case, while noting that work has been slow to get moving, expressed confidence that the program will soon be past this stage. McMillan expressed confidence in the ability of the state highway departments to handle the work, and pointed out that in the early stage of the program, innumerable difficulties —such as acquiring right-of-ways, and establishing the wage scale on each contract—have done much to keep construction in low gear.

Technical, committee meetings

Some problems of financing and construction were carried over into technical and committee sessions held during the afternoons, though most of these were concerned with ways and means of improving construction practices on specialized types of work. During the meeting of the County and Local Roads Division, Rep. Clifford Davis (D., Tenn.) went over some of the difficulties facing builders of secondary routes, and some of the legislation being considered to give more help to these projects.

G. M. Williams, assistant commissioner for engineering for the Bureau of Public Roads, the principal speaker at the contractors' luncheon meeting, went over some of the work accomplished to date and noted that much of the slowness was attributable to the big job of tooling up for 1958.

Electronic vehicle control

One of the more interesting papers at the convention was one on the electronic control of motor vehicles on highways, prepared by V. K. Zworykin and L. E. Flory of the RCA Laboratories in Princeton, N. J. While admitting that complete automatic control is something for the future, the authors pointed to successful tests made so far with electronic controls.

One of the controls outlined was a "flying tail" signal, a series of lights along the roadway that are activated by a detector unit as a car passes by. Lights flash on as the car goes by, and remain lighted for some distance behind the car. A motorist, following the first car, sees the lights and knows that a car is ahead, even though it cannot be seen. This same light system, the authors suggested, might be used in front of a car to warn opposing traffic that a car is approaching around a curve or over the brow of a hill.

Other systems use a radio beam to light a warning lamp or sound a buzzer in one car, warning the driver that another car is ahead. In a completely developed system, the signal received acts on the accelerator or

(Continued on page 38)

BRUTE STRENGTH
FOR BRUTAL TREATMENT
KEEPS US® AXLE
SHOT-PEENED to make them up to 5 TIMES TOUGHER
NO. 1 CHOICE FOR TOUGH JOBS
Whether you make the roads or the road-building giants, U.S. AXLE is your best source for axle shafts designed and built to your exact requirements. Our 38 years of specialized engineering skills, finest alloy steel, modern heat treating methods, and shot-peened hardening process are your assurance of superior toughness in axle shafts for every vehicle. For duplicating original equipment or creating an axle shaft to solve your specific problem, U.S. AXLES stand up to the job, improve performance and reduce maintenance costs in every use. It will pay you to "talk axles" with US.
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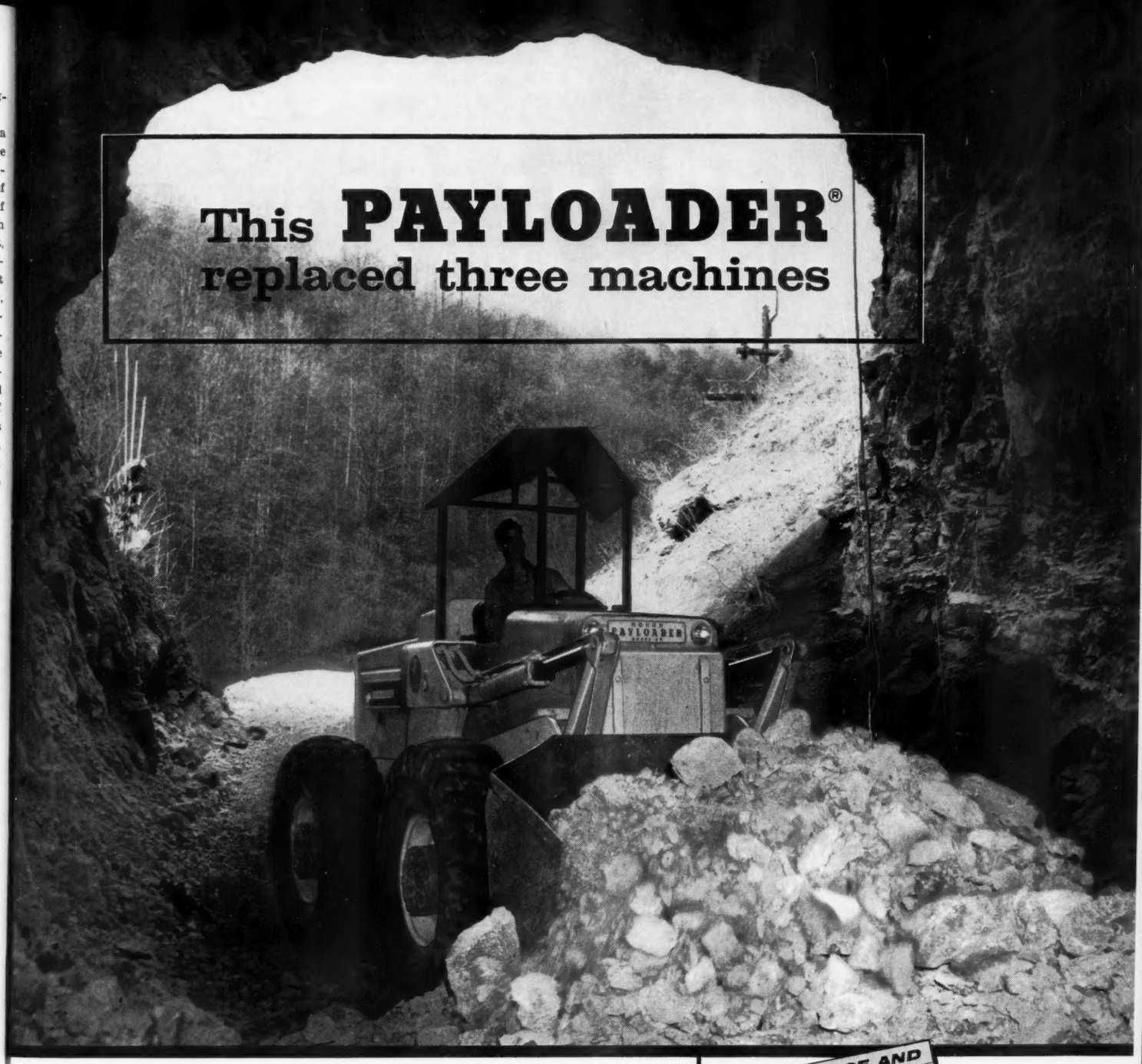
This PAYLOADER® replaced three machines



Contractor Ralph E. Mills Co., Inc. of Salem, Virginia, is enlarging the bore of three Norfolk & Western Railway tunnels built in 1888 and located at the Virginia-West Virginia border. This model HO "PAYLOADER" tractor-shovel has taken over the job of removing the blasted rock from the tunnel after each shot.

George E. Steele, Mills' superintendent, describes its performance this way: "The 'PAYLOADER' is doing this job previously handled by an overhead loader and two off-road shuttle trucks. The result is a saving of ½ the equipment cost and of two operators, also less fuel and maintenance."

He adds, "After a shot today, the HO loaded out and carried thirty-four, 2-yard loads to the spoil area in 40 minutes—a 150-foot one-way haul distance. On this type of tunnel excavation where maximum haul distance does not exceed 500 feet, I prefer the HO 'PAYLOADER' over any machines I ever used."

The power, traction, speed and versatility of a 4-wheel-drive "PAYLOADER" can be used to boost output and profit many ways on your job also. Contact your Hough Distributor for full information.

Modern Materials Handling Equipment

THE FRANK G. HOUGH CO.

LIBERTYVILLE, ILLINOIS

SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

For more facts, use coupon, or Request Card at page 18 and circle No. 228

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Now your Hough Distributor has at his disposal the broadest and most complete set of financing plans ever offered:—TIME PAYMENT . . . LEASING PLANS*, with or without OPTION TO PURCHASE—any and all kinds of financing to best fit your needs for the purchase of "PAYLOADER" equipment. See him today.

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762 Sunnyside Ave., Libertyville, Ill.

Send data on "PAYLOADER" tractor-shovels:

- ☐ model HO (9,000 lb. carry capacity)
- ☐ model HH (7,000 lb. carry capacity)
- ☐ model HU (5,000 lb. carry capacity)

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Title.....

Company.....

Street.....

City..... State.....

3-B-1

At the Carolina Tire Co. booth, tire recapping is explained by L. E Masingo, J. K. Lamb, and H. L. Cunliff, staff experts in attendance.

Seven directors were installed for four-year terms. They are L. N. Ress, state engineer for the Nebraska Department of Roads; J. E. Mitchell, manager of the Manufacturers Sales Division of the Firestone Tire & Rubber Co.; David A. Buck, manager of the State and Local Government Department of International Business Machines; William O. Faylor, Middlecreek Construction Co.; John P. Moss, president of Moss-Thornton Construction Co., Leeds, Ala.; C. L. Miller, Department of Civil Engineering, Massachusetts Institute of Technology; and A. T. McDonald, director of the Public Works Department of Fulton County, Georgia.

CIMA elects

After this session, the Manufacturers Division of ARBA, the Construction Industry Manufacturers Association, Inc., elected its slate of officers. Heading CIMA for the coming year is Boyd S. Oberlink, vice president of Allis-Chalmers Mfg. Co.; R. P. McKenrick was elected executive vice president; G. A. Gilbertson, president of The Frank G. Hough Co.,

(*Continued from page 36*)

brakes to slow the second car in line. Though this newest electronic use is still in the developmental stage, the authors felt that, on the basis of preliminary tests so far, a large measure of automatic control of vehicles is possible.

Panels held

Panel discussions enlivened some of the meetings of eleven technical committees and eight divisions. Aspects of highway illumination were the concern of one panel. The Committee on Roadside Construction and Maintenance had a full schedule of talks, dealing with effective methods of using herbicides, fertilizers, and mulches, and the use of vegetation to control erosion, in addition to a panel discussion on turf for roadsides.

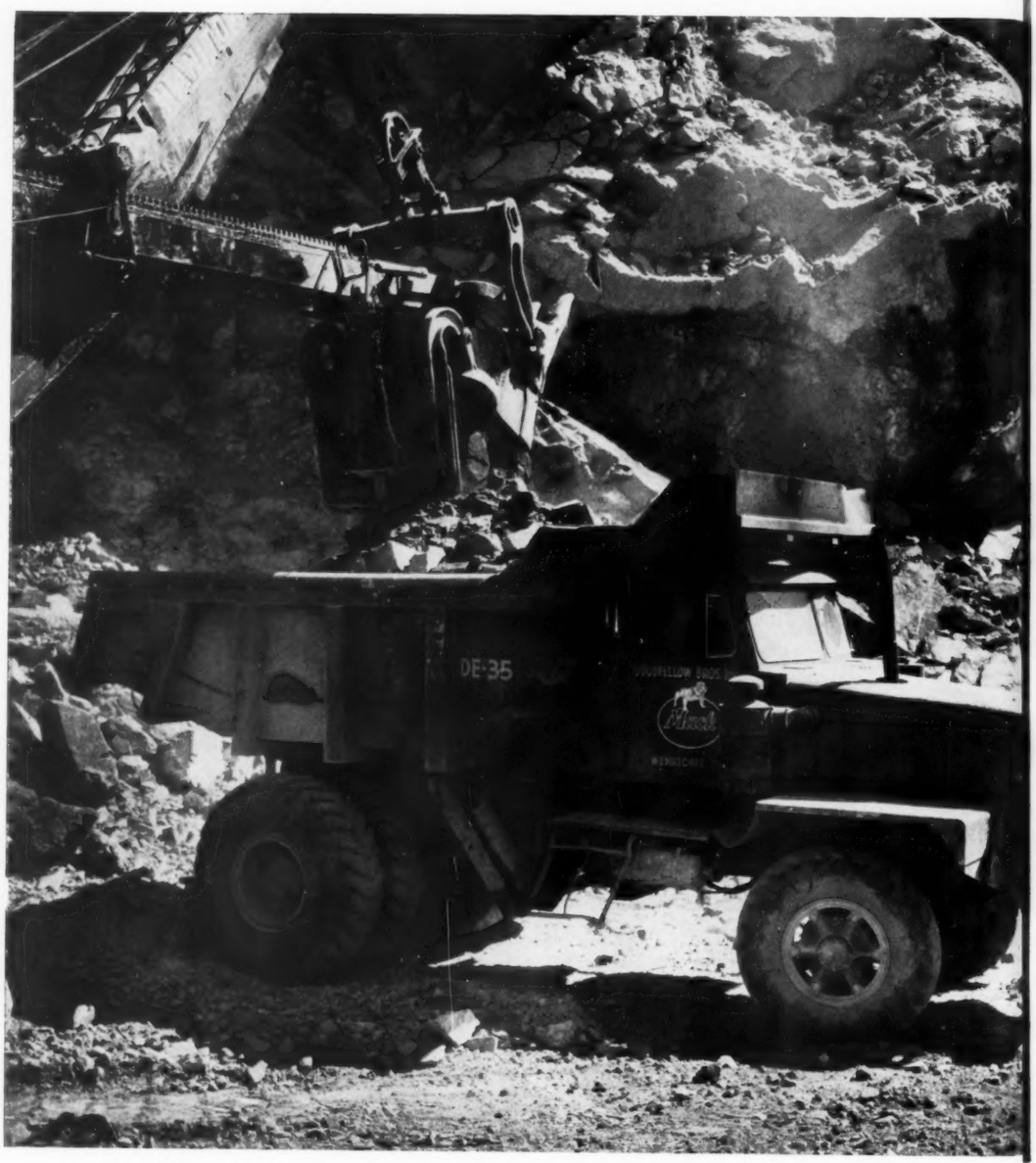
Difficulties in standardizing of reinforcement for concrete roadways were taken up from the contractor's, manufacturer's and state highway department's points of view at a panel discussion by the Committee on Steel in Pavements. Improved methods of stabilization with soil cement, sodium chloride, asphalt, or asphalt emulsion —which will assume growing importance on lightly traveled roads included in the Road Program—also came in for review at meetings of the respective committees.

Throughout the convention, a Materials and Services Exhibit, sponsored by the Materials and Services Division of ARBA was open in the Sheraton-Park's Exposition Hall. This year, more than 66 materials and services manufacturers, associations, and government agencies had displays that ranged from huge tires for earthmoving equipment to guard rails, lighting standards, grade-separation structures, concrete forms, and office machines.

Elections

At the last general session of the convention, the formal election and installation of officers for the coming year took place. Taking office for a second term as president was Julien R. Steelman, president of the Koehring Co., Milwaukee, Wis.

Vice presidents by districts are: J. E. McCracken, sales engineer of Bethlehem Steel Co., Northeastern; Nello L. Teer, Jr., Nello L. Teer Co., Southern; Harold L. Plummer, chairman of the Wisconsin State Highway Commission, Central; W. A. Bugge, director of highways for the state of Washington, Western.



One of the eight Mack four-wheel dumpers with 22½ ton capacity operated by Goodfellow Bros., Inc., of Wenatchee, Washington. The Macks have proved so valuable that Goodfellow Bros. have four more on order. These heavy-duty haulers are taking on a . . .

punishing road job in Sr

Even in temperatures ranging from —15° to 110°, through mud, extreme dust, snow and ice, and on grades of up to 23%—Goodfellow Bros. know that their Macks will perform efficiently, dependably . . . and profitably.

Under such grueling operating conditions, their Mack dumpers showed their capability on the 3,000,000-yard Rocky Reach Dam earth-moving project on the Columbia River. Then they double- proved it on the Snoqualmie Pass highway construc tion in Washington's rough mountain country.

Besides providing maximum payloads at minimum hauling costs, the Macks are particularly well ac cepted by Goodfellow Bros: drivers and shop person nel because of their handling ease, short turning radius and easy accessibility for servicing.

first vice president; and Ray McLean, president of Jaeger Machine Co., treasurer.

Elected as directors of CIMA were A. K. Thomas, vice president of Chain Belt Co., Edward Holt, vice president of Barber-Greene Co.; Kenneth Lindsay, executive vice president of Iowa Mfg. Co.; Frederick Salditt, vice president of Harnischfeger Corp.; K. C. Cox, director of sales promotion of Caterpillar Tractor Co.; Donald V. Buttenheim, president of Buttenheim Publishing Corp.; and John Harrison, president of the Buffalo-Springfield Division of Koehring Co.

Newly elected officers of CIMA for 1958 are, left to right, R. P. McKenrick, executive vice president; G. A. Gilbertson, president of The Frank G. Hough Co., first vice president; Ray McLean, president of Jaeger Machine Co., treasurer; Boyd S. Oberlink, vice president of Allis-Chalmers Mfg. Co., president. At far right is Clarence E. Killebrew, vice president of Clark Equipment Co., the outgoing president.

A series of resolutions, unanimously adopted before the closing of the last general session, gave formal expression to ARBA views on some of the highway problems still to be settled in Congress. One gives association backing to the bill, introduced by Rep. Fallon, which provides for an increase in ABC authorizations of an additional $25 million for 1960, bringing the sum to $900 million in that year, and another $25 million in 1961, to bring the sum to $925 million.

Another resolution, confirming the ability of the highway industry to complete the national highway program in 10 years, and citing the Highway Act's provision for a 13-year schedule, calls for the construction program "to be carried out as adopted by Congress."

Official opposition of the association to "any diversion of revenues from the Highway Trust Fund for non-highway purposes or any distortion of the fund" was contained in still another resolution.

Also adopted was a resolution requesting Congress to leave the Highway Act unchanged and proposing that "the Interstate, Primary, Secondary and Urban programs retain their current relative position in as far as the Highway Trust Fund is concerned". A last resolution carried association views a step further: it favors legislative proposals to halt the trend toward the continued diversion of federal-aid highway funds now being considered in Congress.

THE END

Dumping rock on a road-widening operation on Highway #10 in Washington's Cascade Mountains. Prior to this road job, Goodfellow's 22½ ton Macks were used in the 3,000,000 yd. excavation and backfill for the Rocky Reach Dam near Wenatchee, Washington.

Hercules Powder names

Harold R. Monfort has been named by Hercules Powder Co., Wilmington, Del., an assistant manager of the company's Missouri Chemical Works at Louisiana, Mo. Monfort transfers from the Synthetics Department at Mansfield, Mass., to the Explosives Department which operates the Missouri plant. He is succeeded as manager at Mansfield by Dr. Einar West.

BorTunCo opens branch

The Boring and Tunneling Co. of America has opened a Midwest division office at Kansas City, Mo., with Arthur V. Brungardt as division manager.

The firm and its affiliated organizations, with home offices in Houston, Texas, is engaged solely in the drilling or tunneling of horizontal holes as a service to general contractors.

Snoqualmie Pass

There is a Mack tailored to your construction needs that will provide large-capacity payloads at minimum unit cost. Let your Mack representative show you on-the-job performance proof that—under today's conditions—you can't afford *not* to operate Macks! Mack Trucks, Inc., Plainfield, New Jersey. In Canada: Mack Trucks of Canada, Ltd.

MACK
first name for
TRUCKS

For more facts, use Request Card at page 18 and circle No. 229

Turnpike, gas transmission lines complicate blast-hole drilling for main trunk sewer tunnel

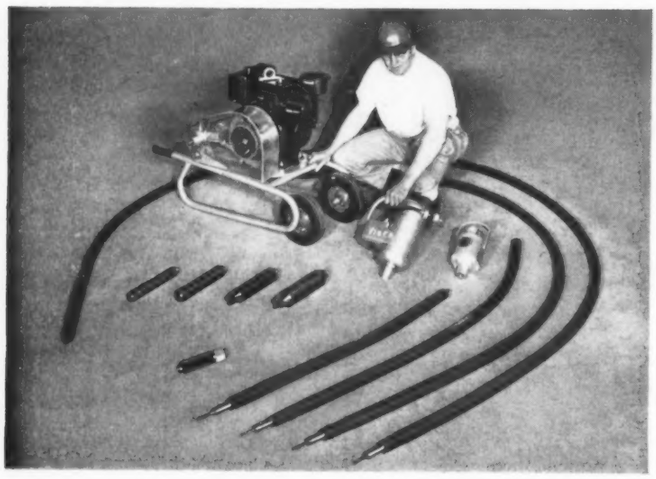
Nudging 8-foot-diameter pipe under the New Jersey Turnpike and four natural gas transmission lines does not take genius, claims Max "Cotton" Dean, Jr., supervisor on a major sewerage project in New Jersey's Middlesex County.

What it takes is hard work, coupled with forethought, the right equipment, and plenty of old-fashioned common sense. Dean declares this is bringing the sewerage project right on schedule.

Despite four to five days when the job was flooded out by heavy rains and high tides on the Raritan River, work is moving along smoothly on the 340-foot main trunk sewer tunnel being driven through red shale under the turnpike near East Brunswick. The contractor, Rock Construction, Inc., Kingston, N. Y., adapted the Swedish method of tunneling, with rock drills mounted on a drill boat welded from heavy steel plate.

Three of the five Atlas Copco drills are connected right to the air and water manifold on the boat. The boat is run into the tunnel and hooked up to the main water and air lines. Six-foot Sandvik Coromant integral drill steels sink 5-foot holes for an average of 36 holes per round. Of this, 34 holes are shot per round. The 8-man crew,

How Viber Answers All Your Problems on Concrete Vibration



You reduce your capital investment—reduce your day-to-day operating and maintenance costs—and answer *all* your vibrating problems—by standardizing on Viber vibrating equipment.

You discover that the Viber line is the most complete line available—and that Viber internal vibrators driven by flexible shaft are the most versatile. With just 12 basic components, as shown in the photo, your men quickly and easily assemble any one of 48 shaft-driven vibrator combinations.

You use electric, pneumatic or gasoline power—whichever is most convenient for the particular job.

You have a 1¾" diameter vibrator head to assure efficient compaction in narrow forms, or where reinforcing steel is closely spaced. You also have larger, interchangeable heads (2⅛", 2½" and 3" diameter), which are recommended for maximum efficiencies in more open forms.

You have a choice of flexible drive shafts in these lengths: four, six, 12 and 21 feet. Because all shafts are immediately interchangeable with any required Viber head and motive power, you can immediately adapt to a wide range of applications in narrow to moderately open forms. Shafts can be coupled to provide longer reach.

A wide variety of other types of Viber vibrators are available to answer all your concrete vibration problems—with the lowest possible capital investment and least possible operating costs.

For factual information, illustrated literature and the name of your nearest distributor, write Viber Company, 726 South Flower St., Burbank 21, California.

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VIBRATORS

Pioneers and leaders in the manufacture of vibrators.

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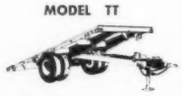
MODEL TT



Heavy-duty tilt trailer. Capacities 6, 8 and 10 tons.

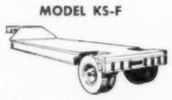
MODEL GTX

Triple axle, 6 dual wheels. Capacities 25 through 45 tons. Flat or drop deck.

MODEL T-8-18

14 or 18 foot length between the wheel tilt trailer 8-10 ton capacity.

MODEL KS-F

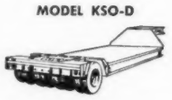


Single axle flat bed semi, capacities 10 through 20 tons. Drop deck or flat deck.

MODEL PX-O

Heavy-duty, self-loading tandem axle oil field float.

MODEL KSO-D



Dual axle drop bed semi, capacities 15 through 30 tons. Drop deck or flat deck.

YOU GET MORE 'GO' WITH... TRANSPORT TT INC TRAILERS

... the Complete Line!

*THE PROFITABLE TRANSPORT PROVED BY MILLIONS OF MILES!

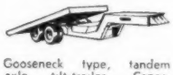
MODEL GPR

Removable gooseneck. Tandem, triple or trunnion axles. Flat or drop decks, or as beam trailers.

MODEL PX

Heavy-duty tandem axle, spring mounted platform or float.

MODEL GXTT



Gooseneck type, tandem axle tilt-trailer. Capacities 14 through 22 tons.

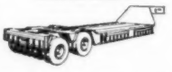
MODEL XTT

Tandem axle tilt trailer (tow type), capacities 13 through 20 tons.

MODEL GPX

Tandem axle. Capacities 16 through 35 tons. Drop deck or flat deck.

MODEL MSO-D



Multiple axle drop bed semi, capacities 35 through 75 tons. Drop deck or flat deck.

DUMP TRAILERS

Single or tandem axle models. Standard capacities 8 through 15 yards.

FREE! WRITE FOR NEW CATALOG OF COMPLETE LINE!

Write for information on SPECIAL TRAILERS and capacities thru 100 tons and more.

TRANSPORT TT INC TRAILERS

CEDAR RAPIDS IOWA, U.S.A.

"TRANSPORTATION ENGINEERING A SPECIALTY"

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Workmen, using Atlas Copco Lion rock drills, sink a round of 5-foot holes under the New Jersey Turnpike for a main trunk sewer tunnel. The Atlas LPC-21 sump pump clears out the last 12 inches of water which poured into the tunnel from high tides on the Raritan River.

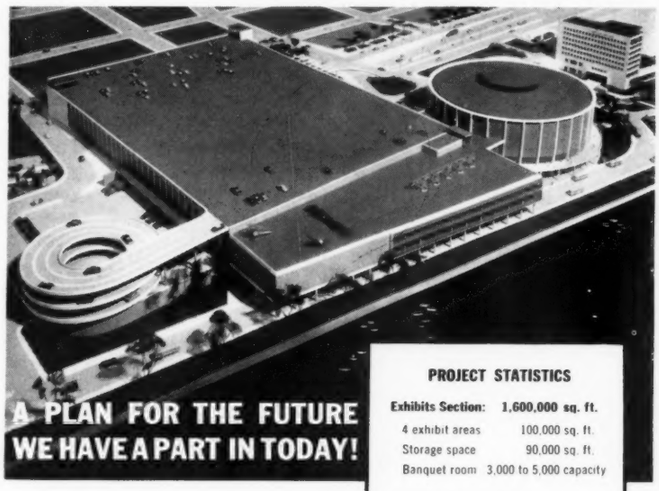
which sets up, drills, and blasts each round in two hours, averages about two cycles per day.

One blasting vibration report stated that the maximum energy ratio recorded was 0.037, well below the allowable ratio of 3.00. The allowable energy ratio of 3.00, established from analyzing job-site tests, represents an energy ratio that will not damage structures that are in ordinary good repair and not prestressed. It will not damage plaster, one of the weakest of building materials.

The turnpike tunnel will be completed with steel liner plate and 8-foot-long lock-joint, precast reinforced-concrete pipe. External diameter of the concrete pipe is 8 feet, giving the trunk line a 7-foot-flow diameter on the inside.

The tunnel under the four gas transmission lines is already finished. When the second phase of the project is completed, the two tunnels will link a number of miles of open cut main trunk sewer line and channel the sewage into a disposal plant southeast of New Brunswick on the Raritan River. Previously, sewage from the ten communities to be hooked into the new line went into septic tanks or ran raw into the Raritan.

THE END



PROJECT STATISTICS

Exhibits Section:	**1,600,000 sq. ft.**
4 exhibit areas	100,000 sq. ft.
Storage space	90,000 sq. ft.
Banquet room	3,000 to 5,000 capacity
Arena Section:	**315 ft. dia. x 100 ft. high**
Seating	14,000 capacity
Over-all parking	2,850 spaces
Available floor space	51 acres

Project covers 17 acres of land

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WASHERS
when you need them!

Our ability to produce and deliver hard, flat and concentric washers made of prime stock to exact A.S.T.M. specifications has given us the privilege of taking part in the construction of Detroit's vast new Civic Center project.

Our reputation as a source for high strength construction washers on a direct basis to contractors and steel fabricators is growing every day. Standard sizes stocked for immediate delivery are: ½", ⅜", ¾", ⅞", 1", 1⅛", and 1¼". Save time and money, order high strength construction washers direct from the manufacturer.

*Hardness of 68 to 75 Rockwell A, and carburized to a minimum depth of .015". Quenched and tempered (non-carburized) washers have a hardness of 35 to 45 Rockwell C.

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1661 WEST LAFAYETTE BLVD., DETROIT 16, MICHIGAN

WHITEHEAD

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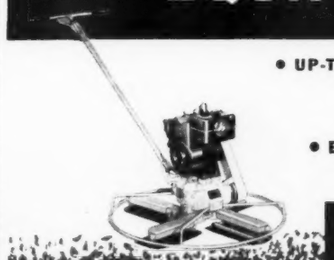
HERE'S THE BIG NEW LINE OF Kelley

CONTRACTORS EQUIPMENT

- UP-TO-DATE DESIGNS
- CAREFULLY ENGINEERED AND FULLY TESTED
- BUILT FOR ROUGH USE
- SPEEDS UP WORK... SAVES MONEY



POWER TROWELS

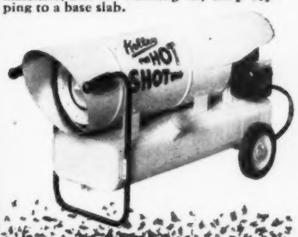
Six models to choose from... 2 de-luxe HYDRA TROWELS, 34" and 44" sizes, with fingertip blade control... and 4 super models with manually adjusted blade pitch: 24" Kelley Bantam, 29" Kelley Boy, the popular 34" Kelley Chief and the big 44" Kelley Commander... a size for every job.

COMPACTORS

The new Kelley Compactor with "Compaction Control". An entirely new machine... larger, easier operating, faster and more powerful. For compaction-floating concrete floors, for keying in tough surface hardener materials, and for bonding dry-tamp topping to a base slab.

POWER TAMPERS

Self-propelled... delivering 2400 impacts a minute. Two models: 18" wide shoe, and 36" wide shoe. For packing down earth backfill to maximum density next to foundations, on road-widening jobs, around culverts and in pipeline trenches. Also for finishing black-top driveways.



SPACE HEATERS

What a blast! From the brand new Kelley Hot Shot Space Heaters, one delivering 125,000 Btu/Hr and the other delivering 325,000 Btu/Hr. Let 'er blow outside... work goes on inside with Kelley Hot Shots! For work on walls, floors, scaffolds and hundreds of other construction jobs.

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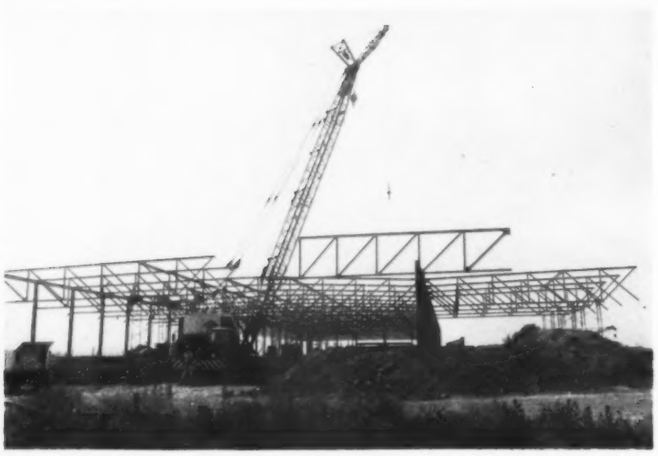


Half of one of the roof trusses is set by a Lima motor crane. One end of the truss is attached to the column; the other end, at the center of the span, will be supported on a Safway scaffolding tower. When the opposite half of the truss has been set, both halves will be joined.

Forms for upper floor supported by steel scaffolds

A maze of steel scaffolding, set up on the finished basement floor, was used to support the forms for the main floor of a big new furniture factory at Fremont, Calif. The modern factory, constructed by Barrett Construction Co., San Francisco, is plant No. 18 for the Kroehler Mfg. Co.

The planned sequence laid out for the concrete-placing operations made it possible for the finished concrete floor of the basement to be used for the Safway scaffolding that supported the first floor forms. This not only provided a level and uniform support for the shoring, but also made it easy for workmen to roll the scaffold sections from place to place as the work progressed.

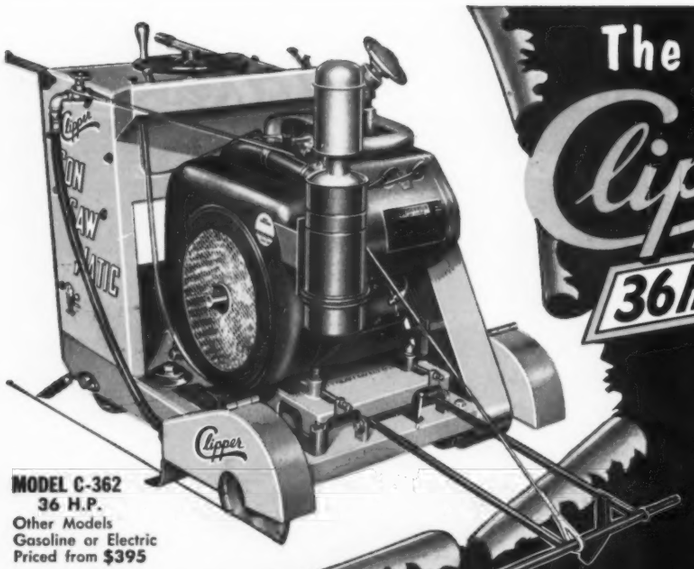
The one-story and basement factory contains 150,000 square feet of area. In addition to the manufacturing area, there is a garage, boiler house, and office. The site is being landscaped and the area will include parking space for automobiles of employees and visitors. All working areas of the building will be air-conditioned. The structure is expected to cost about $2 million.

Site grading and excavation for the basement were handled by a subcontractor, Redgwick & Banke, Inc., Hayward, Calif., which used scrapers and tractor-loaders for the work. Most of the excavation was retained on the site for grading and backfilling. A small amount of the material was loaded into Gar Wood 10-yard boxes on Mack B-42 trucks by Cat D4 and D6 Traxcavators to be hauled away from the area.

On this job, the grading subcontractor had some equipment working practically every day from the first ground breaking to the final completion of roads, parking lot, and landscaping. By the time all the excavation was complete, it was necessary to start some of the backfilling. As soon as the backfilling could be done, grading crews began finish grading of the site and construction of the roads and parking lot.

Footing excavations were made by the general contractor's small trencher, with the help of some hand labor. The footings were cast directly from ready-mix trucks. The more than 5,000 cubic yards of concrete in the footings, walls and floors was supplied by Pacific Coast Aggregate Co. from its Hayward plant.

The heavy concrete walls of the basement were formed with McKeever form panels, steel-framed panels with



The All NEW Clipper "SAILS RIGHT THRU"
36 H.P. SELF-PROPELLED CONCRETE SAW

MODEL C-362
36 H.P.
Other Models
Gasoline or Electric
Priced from $395

features
- DUAL BALANCE DESIGN
- POWERFUL HEAVY-DUTY TRANSMISSION
- POSITIVE BALL BEARING SCREW FEED
- 6 STEEL-CABLE-REINFORCED V-BELTS

USE THIS HIGH PRODUCTION CONCRETE SAW FOR FASTER CUTTING WITH LONGER BLADE LIFE

OVER 36 OUTSTANDING FEATURES FOUND ON NO OTHER SAW!

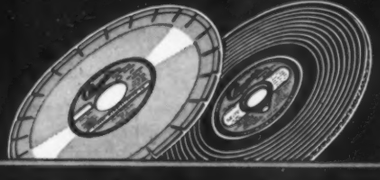
DUAL BALANCE DESIGN—Precision weight distribution for (1) Easy Maneuverability . . . one man lifts-up, lines-up, then saws, (2) Constant adequate weight over the blade during cutting. Only Clipper has it!

POWERFUL HEAVY DUTY TRANSMISSION—Exclusive Abrasive Coated Drive Wheels transmit power to rear wheels for continuous forward thrust.

POSITIVE BALL BEARING SCREW FEED—Assures accurate cutting depth control. A MUST for abrasive blades.

6 STEEL-CABLE-REINFORCED V-BELTS—Delivers full 100% power to the blade for best economy and performance.

RUGGEDLY BUILT TO GIVE YEARS OF TROUBLE FREE SAWING!



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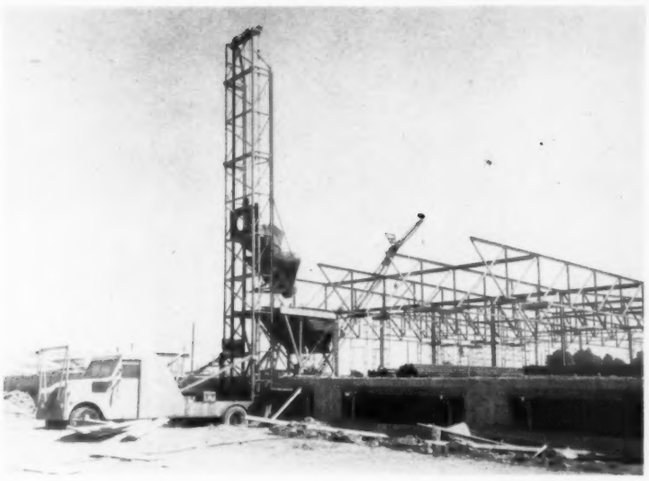
Sections are used to form 25,000-square-foot area at a time; casters are used to roll the sections from pour to pour



Floor sections which the crane was unable to reach are poured by buggies supplied by this Wagner Towermobile with 45-foot-high tower. The 1-yard skip dumps into a 4-yard double-gated hopper on the floor.

plywood facing. They were tied with special snap ties made by W. J. Burke & Co., San Francisco, to match these panels.

The wall concrete was placed by a Lorain 20-ton motor crane with a Gar-Bro 1-yard concrete bucket.

The basement floor grade was undercut 7 inches below the bottom of the concrete floor. Six inches of gravel were placed on this subgrade and covered with an inch of sand to facilitate the fine-grading. Over the sand, a Visqueen vapor barrier was placed ahead of the concrete. This was a sheet of Visqueen plastic film 6 mils in thickness.

The 6-inch-thick reinforced-concrete floor has integral finish. Masterplate was used to densify the surface of this and the main floor slab of the building. The concrete finishing operations were sublet to Western Floors Co., San Francisco, which made use of several types of power finishers. The floors were cured by wetting them down and covering them with Sisalkraft curing paper.

Completion of the basement floor provided a smooth level surface to support the scaffolding that carried the first floor forms.

The completed basement floor provided a smooth, level surface for the scaffolding that carried the first floor forms. Safway scaffolding sections, 12 feet high, were set up for the forming of a 25,000-square-foot area of floor at a time. Detachable casters were used to roll the scaffold sections from place to place, but in position the sec-

(*Continued on next page*)

The swivel bucket fitted to this Wagner Scoopmobile proved extremely useful on the columns and some of the other small pours.

SAVE MONEY- SPEED ROAD JOBS!

GALION 503 MOTOR GRADER with VIBRATORY COMPACTOR

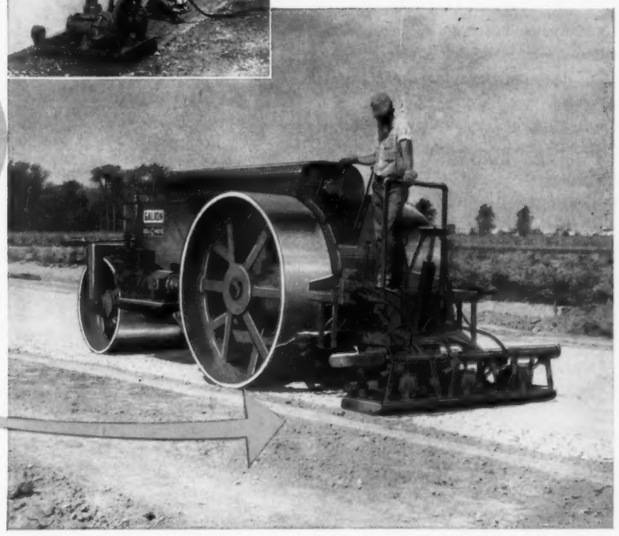
Now you can grade, spread material, and compact fills and subbase courses with ONE machine. This combination of GALION Grader and Jackson Electric Vibratory Compactor easily, speedily and economically accomplishes most specified densities—often in one pass per lift. It leaves a smooth flat surface—no waves or "washboard" effect.

FOR SPOTS OTHERS CAN'T REACH

Individual compactor units may be detached and used as manually-guided, self-propelled compactors for confined areas.

Compactor power unit can be used as a lighting plant or for operation of small power tools.

GALION 3-WHEEL ROLLERS with VIBRATORY COMPACTOR



Either the "Chief" or "Warrior" model Roller with Vibratory Compactor gives you both static and dynamic compaction with ONE machine. You get the compressing action of massive roller weight plus the consolidating action of vibration (4200 three-ton blows per minute).
So effective is this double compaction effort that the most rigid Federal and State density specifications (including Proctor, Modified Proctor, and AASHO-T99-49) are often attained in ONE pass per lift.

Write for complete information.

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MOTOR GRADERS & ROLLERS

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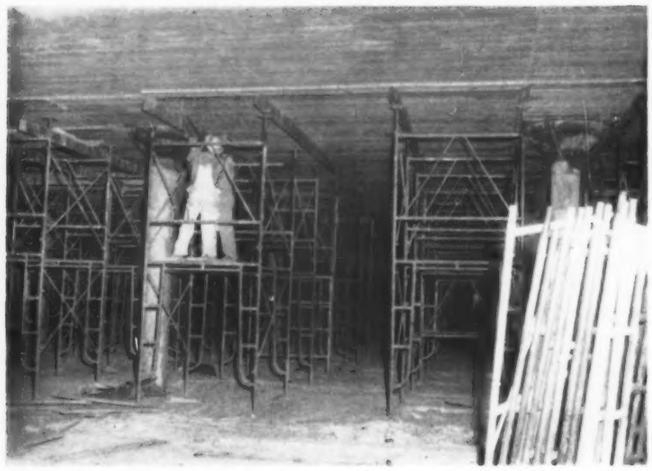


Crews strip forms for a floor. Forms are supported on Safway scaffolding set on the concrete floor of the new furniture factory in Fremont, Calif. The 4 x 6 stringers were carried in the adjustable brackets on the tops of the scaffold sections. The 2 x 10 planking in the opposite direction completes the forms.

get into restricted areas with ease, and it could hoist the concrete to the tops of the 12-foot-high column forms. The round columns and capitals were formed with steel form sections.

Where it was necessary to finish the basement ceilings, the irregularities in the concrete were ground off with a Stow "giraff" grinder. With this rig, a workman could stand on the basement floor and control the grinding wheel on the ceiling 12 feet above.

Superstructure is steel

Above the first floor level, the building superstructure is made up of structural steel columns, long-span roof trusses, and channel purlins. The structural steel was furnished and erected by a subcontractor, National Iron Works, Alameda, Calif.

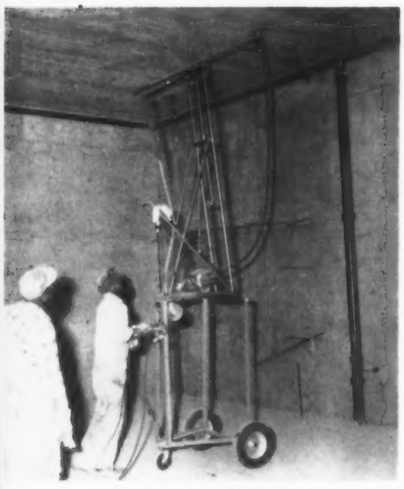
(*Continued from preceding page*)

tions were suported on the standard adjustable feet.

Spanning across the tops of the scaffold sections were 4×6 stringers which supported the 2×10 plank decking on which the concrete was poured. These forms were quickly and easily stripped so that they could be moved from place to place. The same material was re-used to form the entire floor.

Concrete for the 9-inch-thick reinforced-concrete slab floor was delivered in transit mixers and placed by a combination of equipment. The portions around the edges of the structure that could be reached by the crane were poured by the crane-and-bucket method. To get the concrete to the interior sections, the contractor set up a Wagner Towermobile with 45-foot tower at one side of the building. The tower had a 1-yard skip which raised the concrete from the transit mixers to a 4-yard double-gated hopper on the floor level. This floor level was several feet above the surrounding ground. Workmen with buggies wheeled the concrete from the hopper to the panels being poured.

To place concrete for the columns and other small pours, Barrett used a Wagner Scoopmobile equipped with a 22-foot-high tower and a swiveling concrete bucket. This rig was able to



In areas where the underside of the slab had to be smooth, the irregularities are ground off with this Stow "giraffe" grinder. The workman does not need a ladder or scaffold to reach the 12-foot-high ceiling.

Allis-Chalmers

TS-160

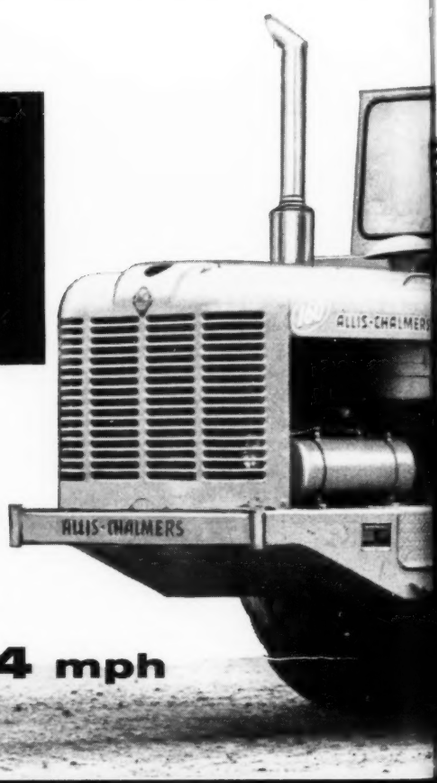
7 yd struck

9.5 yd heaped

155 horsepower

5 speeds to 25.4 mph

12-ton payload



Measure these advantages for w

22 hp per struck yard—Big Allis-Chalmers supercharged diesel engine delivers extra lugging abil for tough pulls, fast loading. Versatile TS-160 can team up with big equipment or work alone on long- short-haul construction jobs—handle a wide range of utility jobs, travel at speeds up to 25.4 mph.

Measure these features . . . Allis-Chalmers 516-cu-in. diesel engine—dependable power at all working speeds • Independent, constant live hydraulic power for steering and scraper operation • Low, wide bowl—8-ft, 1½-in. cutting edge . . . 3-piece, interchangeable cutting edges . . . double-acting hydraulic bowl lift jacks • Positive hydraulic ejection, high apron lift to full 7-ft, 1½-in. opening • Roomy operator's compartment, easy-to-reach controls, 24-volt direct electric starting, adjustable bucket-type seat, synchronized 4-wheel air brakes • Big push block for all types of pushers.

Since the 100-foot-long roof trusses were too long to haul to the job in one piece, they were spliced in the center. In order to erect these trusses with a single crane, the subcontractor used Safway scaffolding bents as falsework to support the center of the spans. Using a Lima truck crane, the erection crew set one end of the half-trusses in place on the columns. The other end was placed on the Safway scaffolding bent. When the other half of the trusses was set and joined to the first, the two were welded together to make a completely welded truss.

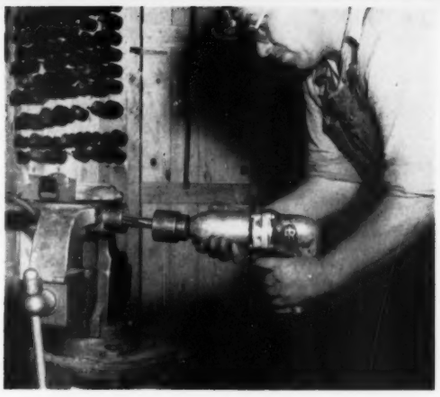
Connections at the columns and the connections with bracing and other members were made with Bethlehem high-tensile bolts and washers.

The roof was decked with steel roof decking on which a 1-inch insulating board was placed. The finished built-up roof was placed by a subcontractor, Regal Roofing Co., San Francisco.

Exterior walls for the building are of brick masonry backed with concrete blocks. The masonry work was sublet to Woodward & Wilson, Richmond, Calif. Brick is rather costly in this area, and it is not widely used on industrial buildings. However, it gives this structure a pleasing and distinctive appearance.

Roads on the site and the parking area are being surfaced with bituminous paving by the grading contractor.

Superintendent of the project for Barrett Construction Co. was J. L. "Jack" Connelly. The structure was designed by John Sardis & Associates, Architects, San Francisco. THE END



A worker using an Ingersoll-Rand air Impactool retaps a damaged nut. The nut, held in a hexagonal I-R socket clamped in a vise, is forced over a square tap end.

Air power tool salvages cable clamps and nuts

Thousands of cable clamps and nuts, previously scrapped, are now being salvaged by the construction department of the Duke Power Co., New York City. A simply designed jig has been provided with separate rectangular channels to hold each of the three different sizes of clamps. The jig is held firmly in a vise by means of a welded baseplate and the clamp is slipped into its proper channel.

An Ingersoll-Rand air Impactool, fitted with a special adapter, is used to chase the threads. The adapter, constructed from a length of pipe, is capped with a threaded flange at one end. The flange is broached to fit the ⅝-inch-square driver of the tool, and the other end is bored to seat the threading die.

The lightweight tool transmits no "kick" to the handle and makes it easy for the operator to produce smooth, clean threads on the extra-long studs. The reverse lever, located above the trigger of the Impactool, changes the drive rotation to run the die off the threads. After the chasing operations, the nut is run on the threaded studs, which range in diameter from ½ to 1⅛ inch, in increments of ⅛ inch.

The air Impactool is also used for tapping operations on damaged nuts. For this job, a hexagonal nut is force-fitted over the square end of the tap. The opposite end of the socket is slipped over the tool's square driver. The nut to be reworked is placed in an I-R hexagonal socket of suitable size, and the socket is held in a vise.

American Vitrified buys Tulley Concrete Products

The American Vitrified Products Co., Cleveland, Ohio, has acquired Tulley Concrete Products Co., St. Louis, Mo. The acquisition now enables American Vitrified to manufacture and market concrete pipe and similar products in the St. Louis area, which has previously been out of reach due to restrictive freight rates. The firm now has 14 plants in 7 states.

B & D opens new branch

Black & Decker Mfg. Co., makers of electric tools, has opened a new sales and service branch at 3407 S. Dale Mabry Highway, Tampa, Fla. Edward G. Seiders is service manager.

or wide range of earth-moving jobs...

Turns non-stop in less than 25 ft with 90-degree hydraulic steering . . . easy maneuverability in narrow cuts, faster cycles without reversing in tight turn-arounds.

Moves quickly from job to job . . . when required, transport wheels are available to meet legal load limits for highway travel.

ALLIS-CHALMERS CONSTRUCTION MACHINERY DIVISION, MILWAUKEE 1, WISCONSIN

ALLIS-CHALMERS

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An Allis-Chalmers front-end loader moves rubble to the mouth of the main shaft in one of the caverns. The loader was completely dismantled above ground and sent below piece by piece for reassembly.

Crews drill maze of tunnels for underground LPG storage

At a minimum depth of 300 feet below the earth's surface, crews are drilling, blasting, and scooping out a maze of interconnected tunnels as storage caverns for 28 million gallons of liquefied petroleum gas. The two caverns, which consist of networks of honeycomb tunnels, are located below the pipes, tanks, and tracks of Esso Standard Oil Co.'s Bayway Refinery in Linden, N. J.

Fenis & Scisson, Inc., Tulsa, Okla., the general contractor, began work on the caverns in October, 1956, by having a drill rig bore out a 50-inch-diameter main shaft. The diameter was later reduced to 42 inches when the shaft was lined with a steel tube.

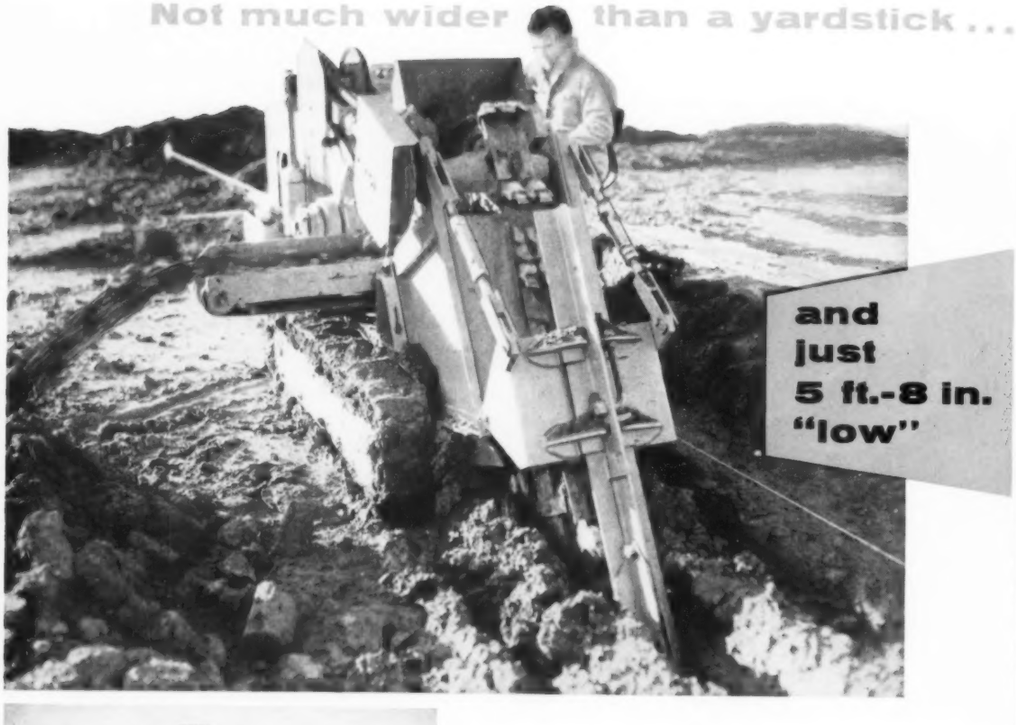
Tunneling operations

The first work crew and surveyors started out from this single shaft, enlarging the first tunnel as they went. All equipment and workmen are sent underground through this main-shaft tube. A heavy bulldozer, two rocker shovels, and four front-end loaders were dismantled above the ground and sent below piece by piece. The diesel-powered loaders are equipped with catalyst exhaust scrubbers to prevent air contamination.

The air-powered rocker shovels, operating on a short, narrow-gage track, scoop up the loose rock, dump the load into a tail-end bucket, and carry it to the shaft base. The electrically-operated buckets are whisked to the top at a rate of 2,200 fpm, dumped, and lowered again, all in about 35 seconds. Approximately 134,000 cubic yards of stone and solid dark red

Workers drill a blast hole for one of the tunnels in an underground storage cavern that will hold 300,000 barrels of propane gas at Esso Standard Oil Co.'s Bayway Refinery, which is located in Linden, N. J.

Not much wider than a yardstick . . .



and just 5 ft.-8 in. "low"

Here's a companion-model utility trencher, mounted on rubber tires — the Parsons 88 Trenchmobile®. It makes self-powered moves over city streets, highways, through traffic at travel speeds up to 12.6 m.p.h. — maintains fast "work-and-run" schedules. Trenchmobile digs 8 or 16 inches wide, at depths to 5 feet. Ladder and wheel-type Trenchliners are available for digging up to 6 feet wide, 19 feet deep.

Parsons introduces a NEW small 77 Trenchliner...

. . . It's only 3 feet-8 inches wide. Working height, with boom in digging position, is just 5 feet-8 inches. What's more, this little Parsons 77 Trenchliner only weighs about 6500 pounds for convenient trailer-transport from job to job. Small in size, but big in capacity, the 77 has a work range that will surprise you. For instance . . .

Digs up to 5 feet deep

It produces from 4.4 inches to 21 lineal feet of trench per minute, in 32 hi-lo digging speed selections. You get trench widths from 6 to 18 inches, *and maximum digging depth of 5 feet!* The tiny 77 is heavy-duty in every respect. It has positive down-crowd on telescopic ladder boom. Self cleaning, cast-steel buckets are equipped with Parsons "Tap-In" teeth. Shiftable spoil conveyor is instantly reversible for controlled discharge. Compact and maneuverable, the 77 turns within its own length — each crawler is independently driven, independently braked. Better check what this small utility 77 Trenchliner can do on service connections, small mains, underground cables, lighting systems, curb, foundation footings. Ask Parsons distributor for demonstration, or write to us today.

Mail today to: PARSONS COMPANY, Newton, Iowa

Send literature on: ☐ *77 Trenchliner* ☐ *88 Trenchmobile*

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PARSONS® TRENCHLINER® *A division of Koehring Company*

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THE DREDGE "QUEEN" works at the end of a 6,000-foot pipeline as it deepens the channel of the Navesink River at Red Bank, N. J., under a U. S. Army Corps of Engineers contract on this part of the Inland Waterway. The line, of L. B. Foster 16-inch steel pipe, joined by a ball-and-socket arrangement, is supported by pontoons for about 500 feet and then dropped to the river floor until it reaches land. From the shore, the pipeline extends another 500 feet to an 18,000-yard disposal area.

shale will be excavated for the caverns.

Drilling operations, handled by Layne-New York Co., Inc., New York City, include cutting out five shafts—each 42 inches in diameter—and 14 ventilation shafts that are 12 inches in diameter. Steel for each of the shafts is installed from the surface.

When completed this year, the network will include 6,000 linear feet of tunnels that are generally 13 feet wide and 22 feet high. The first cavern will hold 300,000 barrels of propane gas; and the second, 375,000 barrels of butane gas. Both gases will be stored in the liquid state under pressure. The solid rock walls will be the only container, and these will be sealed off after the caverns have been filled. THE END

Thor personnel changes

Walter B. Smith has been appointed district sales manager of the Milwaukee branch of Thor Power Tool Co., Aurora, Ill. He replaces Clarence B. Bergren, who is now manager of Thor electric and Speed-Tool sales. Smith's sales territory includes Wisconsin, Minnesota, North Dakota, and part of South Dakota.

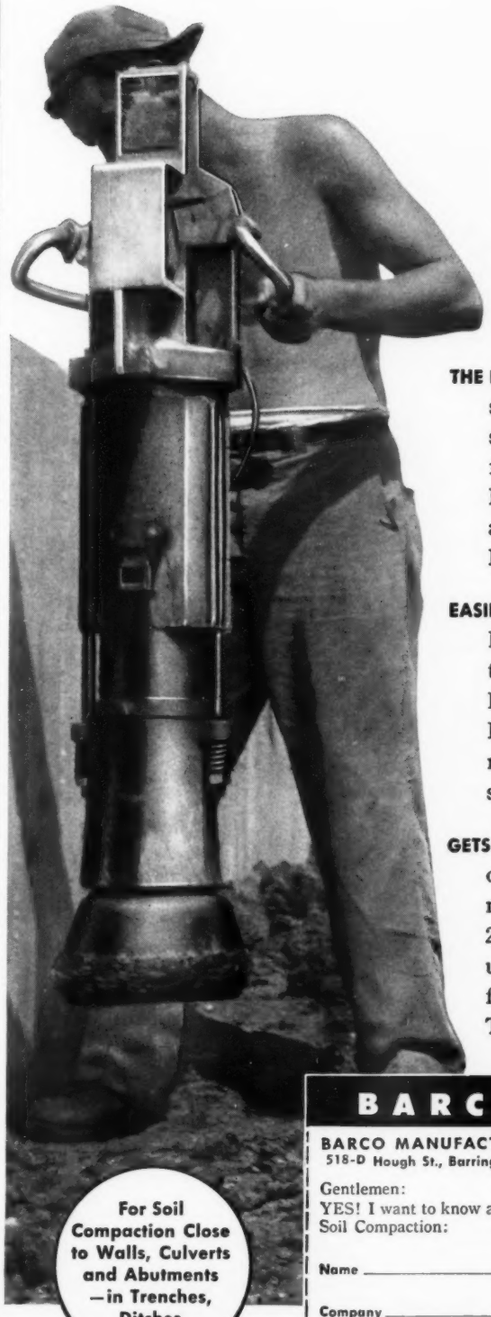
Theodore E. Vocker, St. Louis service engineer, fills Smith's former post as St. Louis branch manager. Promoted also to district sales manager are Harry L. Groves to the Houston, Texas, branch, covering Texas, except for the El Paso area, eastern Louisiana, and part of southern Arkansas; Martin A. Bertram to the Cincinnati branch, covering southwestern Ohio and the eastern half of Kentucky; Samuel P. Gartland to the Boston branch, covering Massachusetts, New Hampshire, Maine, and Rhode Island; Thomas J. Murphy to the Buffalo branch, covering western New York State and northern Pennsylvania; and James Q. Golden to the Atlanta branch, covering Georgia, Florida, South Carolina, and part of western North Carolina.

Purolator plans expansion

Jules P. Kovacs, vice president in charge of research and development of Purolator Products, Inc., Rahway, N. J., has been given the additional responsibilities of new marketing and special engineering services. Purolator manufactures automotive and industrial equipment filters.

Kovacs, who joined the company in 1929, was named a vice president in 1950.

WHEN CONSTRUCTION JOBS CALL FOR SOIL COMPACTION



BARCO is the ANSWER!

THE KEY TO BETTER CONSTRUCTION—No recent trend in construction has had a more phenomenal growth than the specification of HIGH DEGREE SOIL COMPACTION for all kinds of projects—Atomic Energy, Hydroelectric Power and Flood Control Dams, Highways, Toll Roads and Freeways, Airports, Bridges, Buildings, and Housing Developments!

EASILY MEETS RIGID SPECIFICATIONS—In test after test, Barco Rammers have demonstrated their ability to deliver 95% to 97.5% compaction (modified Proctor Method)—EASILY! EFFICIENTLY! ECONOMICALLY! The Barco Rammer is especially useful for compacting fill in restricted areas. ONLY the Barco Rammer can produce specified high degree compaction on lifts up to 20 inches.

GETS JOBS FINISHED ON TIME—One of the biggest advantages offered by Barco Rammers is ability to handle work in minimum time. On area tamping, one man can average 20 to 30 cubic yards of fill per hour. On trench backfill, using lifts up to 24", the rate for 18" trench is 360 to 600 feet per hour. *When time is at a premium,* BARCO IS THE ANSWER—find out about it NOW!

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Labor review

President Eisenhower's recommendations for labor legislation this year were sent to Congress on January 23. In all respects they tallied with the preview Labor Secretary James P. Mitchell gave to the AFL-CIO convention a month previous.

The President's program, which is offered as a piece of government aid to "protect the basic rights of the individual worker and to maintain the integrity of trade unionism", gives first attention to measures to prevent the sort of financial finaglings exposed by the McClellan Committee. But there is much more: the Taft Act would be reworked to tighten up secondary boycott provisions and to make picketing an unfair labor practice under certain circumstances; states would be permitted to act in labor matters when NLRB declines jurisdiction, and economic strikers would be permitted to vote in representation elections.

Under the President's program, labor unions would be required to file annually with the Labor Department two types of reports. One would be a complete financial report available for public inspection. Unions would be required to maintain their books for membership scrutiny, and members would be able to sue union officers in state or federal courts.

The other type of labor-union report would show what is contained in union constitutions and by-laws, and also show that members have a right to elect officers by secret ballot at least once every four years. National officers could be elected directly by secret ballot, or by delegate bodies chosen by a secret vote of the membership. All reports would be made public by the Labor Department.

Employers, too, would be required to file reports under the President's legislative recommendations. They would have to report to the Labor Department on "all financial dealings with labor organizations or their representatives" except for payments specifically authorized by law or reported under other requirements of law. Included in these reports would be employer dealings with labor representatives through a third party.

To get at corruption in labor affairs, the Administration wants criminal action for embezzlement of union funds, false entries, and destruction of books and records. And a new bribery section would be added to the Criminal Code making it a felony for an employer or his agent, or any union official or representative, to make or receive bribes.

The President also recommends that legislation be enacted to prohibit, by application of appropriate civil and criminal laws, dealings between employers and labor unions "which operate to impair the rights of working people to organize, to select their bargaining representative or effectively to bargain collectively".

Among the Taft Act amendments urged by the President are two suggested by last year's Joint Construction Advisory Committee On Changes in the Taft Act. The President asks that (1) the Act be changed to permit the National Labor Relations Board to certify, without a prior election, unions representing workers in the building and construction industry, and (2) the Act be clarified to permit employer payments to jointly controlled trust funds for apprenticeship and training purposes.

One of the major features of the Administration recommendations is the proposal to establish in the Labor Department a Commissioner of Labor Reports who would be responsible to the Secretary for the performance of duties under the proposed legislation, and who would have authority—with subpoena power—to "investigate reports of violations of the reporting requirements, including the accuracy of reports filed, and charges that union election or procedural practices are not in accordance with the reporting requirements". The Commissioner of Labor Reports would be authorized to seek injunctions against violations of reporting requirements.

Parts of the President's program expected to bring criticism from unions were the sections that recommend changes in the Taft Act to tighten up the secondary boycott prohibitions and to make it an unfair labor practice for a union to picket "to coerce an employer to recognize it as the bargaining representative of his employees" or to force employees to accept the union as a bargaining agent. This prohibition would apply where the employer lawfully has recognized another labor organization, the union has lost an employee election within the preceding 12 months, or it is otherwise clear that employees do not want the union as their agent.

* * *

Reaction to President Eisenhower's message on labor legislation was

Heltzel Flex-Plane

UNITIZED BATCHING PLANTS to further speed set-up and dismantling time . . . to give you even greater on-the-job flexibility. The new Heltzel Unitized Plant—like these on a G. Toccolino & Son job in Detroit—is designed in three easy-to-handle sections that go together in minutes. This installation is set up as push-button drive-through for extra fast service. Batcher and scale unit is integral part of center section . . . a real time-saving innovation. (Note new Heltzel E-4 twin-batcher cement plant.)

2202

THE HELTZEL STEEL FORM AND IRON

quick both in comment and in action as Senate and House bills were introduced to carry out his recommendations.

Sen. H. Alexander Smith (R., N. J.) introduced three bills on the Senate side embodying Mr. Eisenhower's legislative views. And in the House the same measures were introduced by two House Labor Committee members, Rep. Rhodes (R., Ariz.) and Rep. Holt (R., Calif.).

The President's proposal drew a generally favorable word from those members of his party in Congress who commented. From organized labor the reaction was critical, especially on those parts of the program that affect the internal workings of labor unions.

AFL-CIO President George Meany remarked that some of the Administration proposals "could easily lead to legislation demanding, in effect, licensing of trade unions".

President A. J. Hayes of the International Association of Machinists, who serves as chairman of the AFL-CIO Ethical Practices Committee, was even more critical. He said:

"We have long favored full financial disclosure of all health and welfare plans. We still favor such legislation.

"The President's recommendations for internal control of unions represents an invasion by the government of a free American institution. If enacted, they will mean the end of our free trade union movement. The next step will be for the government to select the officers of trade unions. That's what Hitler did in Germany; it's what Mussolini did in Italy; it's what Peron did in Argentina. We're against it."

Chairman McClellan of the Senate rackets investigating committee issued the following statement in connection with the President's labor message:

"The President is now making positive recommendations for corrective legislation.

"I support in principle all that he has recommended. However, there are several additional areas not covered by the President's message in which further remedial legislation should be enacted.

"I am also glad to note that the President has adopted my proposal that the tax exempt privilege be denied to unions that fail or refuse to comply with the law.

"I also approve his recommendations requiring employers to report their financial dealings with unions, such as the Shefferman transactions, and the barring of collusion between unions and management which frequently result in sweetheart contracts.

"All of this evidences progress."

* * *

Work on a furnace rebuilding job at Republic Steel Corp. in Buffalo was halted temporarily as building tradesmen, employed by subcontractors doing the job, refused to go on the **32-hour workweek** currently being worked by the Steelworkers.

The building tradesmen, who are employed by two outside contractors —the George B. Pollak Construction Co., of Youngstown, Ohio, and the Research Engineering Corp., Bound Brook, N. J.—refused to go along with Republic's request, made via the two subcontractors, to suspend the 40-hour week requirement of their agreements. Steelworkers, employed as maintenance men by Republic, are understood to work along with the building tradesmen on such jobs, and a Republic spokesman said it "wouldn't be right" to have the maintenance men on a 32-hour workweek, while the outside building tradesmen are working 40 hours a week.

The company was not pushing to get the work done, apparently content to let the present situation remain at a status quo: Republic wanted the 32-hour week for the building tradesmen, who were standing pat on either 40 hours or no work. Result: no work.

* * *

Operating Engineers in Southern Illinois and Terre Haute, Ind., and area contractors got together on new three-year agreements, while the Laborers in Illinois Highway Districts Numbers 3 and 4 wound up a two-year contract.

The three-year agreement covering 14 southern Illinois counties gives members of Operating Engineers' Local 318, employed by the Egyptian Contractors Association, an immediate 20-cents-an-hour wage hike, another 15 cents next year, and a final 15 cents in 1960. Old rates reportedly ranged from $2.50 to $3.30 an hour. A management official estimates the contract will affect some 300 members of the local, and 1,000 nonmembers who work in the area on permits.

The Laborers and the Associated General Contractors in Illinois Highway Districts 3 and 4 settled for 17½ cents an hour this year and 15 cents in 1959.

FLEX-PLANE COMBINATION FINISHER-FLOAT does two jobs in one, reducing crew time to an absolute minimum. The combining of these two jobs is a natural—results in a better finish in faster time. This new machine was thoroughly tested on several jobs last season. Contractors report 4000 feet of 24-foot pavement was floated and finished in a normal day with but two or three hand finishers required. Get the facts on this profit maker before submitting too many quotations.

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Modern highway design demands top efficiency in highway construction machinery. Portable . . . versatile . . . automatic . . . *fast*.

That's why Heltzel Flex-Plane Engineering works to give you the most modern road-building equipment obtainable. Up-to-date engineering, for example, has produced a definite contractors' preference for Flex-Plane over all other makes. This preference is based, of course, on proved performance.

Find out now what Heltzel Flex-Plane Engineering can mean to you — call on actual users of Heltzel and Flex-Plane equipment, and prove to your own satisfaction that this is the *modern* equipment for modern highway construction.

HELTZEL DUAL DUTY FORMS, such as those shown in use on the Plattsburg SAC base, have been redesigned to assure fast setting and stripping with maximum strength-weight ratio. Sizes available to exactly suit your job requirements.

IRON COMPANY · Warren, Ohio

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For more facts on insert, circle No. 242→

This is the twenty-eighth of a series of articles on Construction Management by George E. Deatherage, P. E., construction consultant. The articles are based on an eight-volume "Manual of Advanced Construction Management" published by Geo. E. Deatherage & Son, P. O. Box 921, Lake Worth, Fla. The manual is used in a training course for superintendents and project managers, and is directed primarily at those contractor employees who have reached the foreman level or its equivalent, and who need practical help in order to take complete charge of construction projects themselves.

Management

Planning and production:

Tools and shop equipment

by GEORGE E. DEATHERAGE, P. E.
construction consultant

A practical working setup for handling tools and equipment on larger jobs consists of a Tool and Equipment Section, which is under the management of one responsible man.

This section handles all matters pertaining to tools and equipment, even to dispatching mobile equipment to various parts of the job as needed. The setup prevents one foreman or section of the work from monopolizing equipment, unnecessarily. The result: centralized control of equipment that makes for maximum economical service of each item.

This section, as figure 1 shows, controls the dispatching of equipment, the repair of equipment, the clearing of subcontractors' tools and equipment, and records and inventories of equipment.

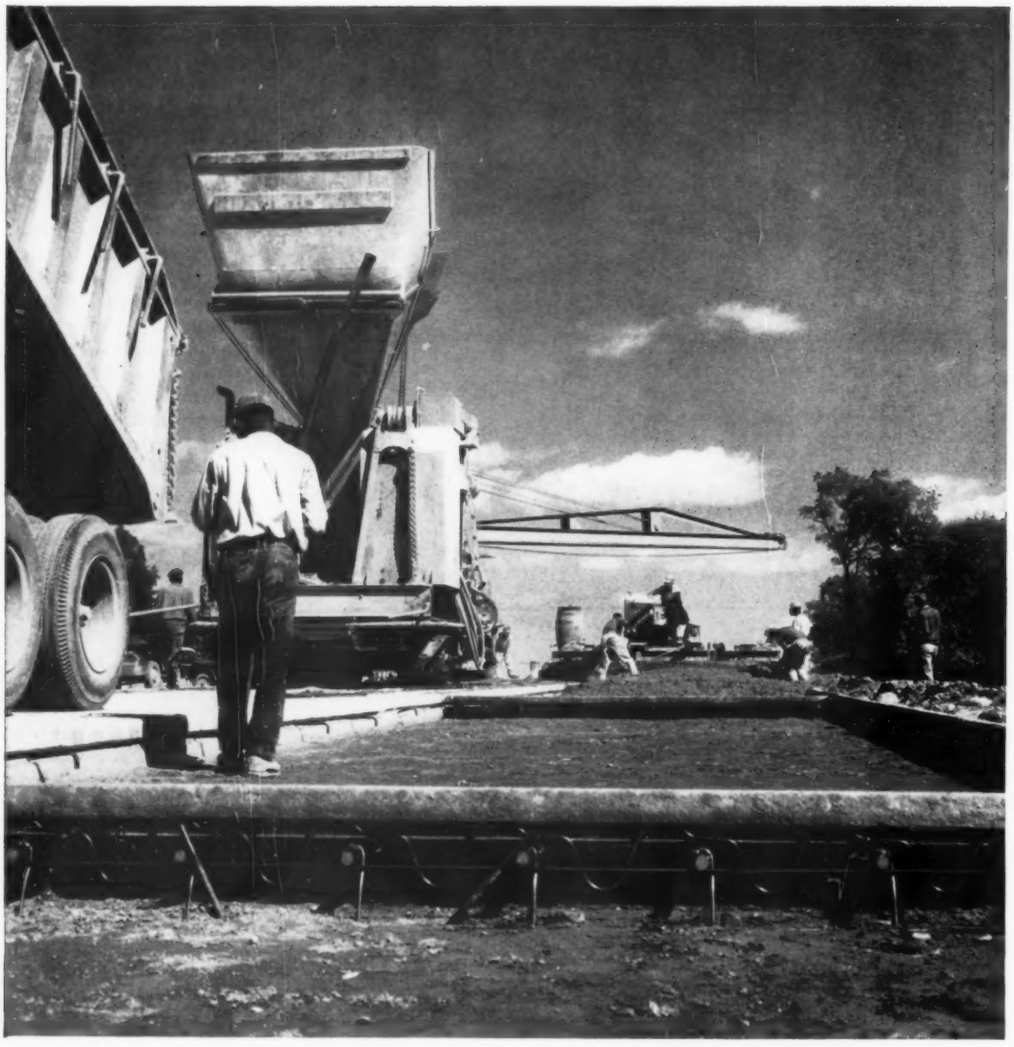
On smaller work, tools and equipment may be handled by a single individual or left to the job foreman; the only facilities needed are small tool cribs. On federal work, on a fee basis, the tools are charged to the work, but all must be accounted for at the end of the job. If any are lost or stolen, the loss is charged to the contractor. Worn-out tools must be turned in so that credit can be taken for them.

Tool list by trades

A list of tools commonly used on construction is extremely valuable in many ways. The estimator may use it as a reminder in allocating money for their purchase and use; the project manager or superintendent can refer to it when setting up his job tool requirements, which he may requisition from the warehouse or for purchase.

In the mechanical and electrical trades, special tools are required, and these must be supplied by the contractor. The nature of the tools expected to be provided by the mechanic is to a great extent regulated by tradition and, in many other cases, by the trades unions. This practice, depending upon the unions, varies in different parts of the country. In general, the laborer is never expected to supply any tools. The carpenter is usually expected to supply his own hand tools, since these can be transported in his toolbox. Items such as crosscut saws and ship augers, along

(*Continued on page 53*)



Paving the Connecticut Turnpike

Paving operations were in full swing when this picture was taken along the portion of the Connecticut Turnpike west of New Haven. Here the turnpike will be a six-lane, divided expressway of reinforced concrete, with 12-ft lanes and curves not exceeding three degrees. Grades are three per cent or less.

Bethlehem has supplied a number of road steel products for the Connecticut Turnpike, including dowel units, reinforcing bars, steel guard rail, and paving steels. In addition, many thousands of tons of Bethlehem steel piling and structural shapes were used in the construction of the turnpike's bridges and overpasses.

Bethlehem supplies a complete line of road steel products to contractors, from drill steel used in rock removal to right-of-way fence along the completed highway.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

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BETHLEHEM STEEL

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(*Continued from page 50*)

with other equipment not commonly used, are expected to be supplied by the employer.

Hand tools for the plastering, bricklaying, tile-setting trades are few in number and are usually provided by the workmen.

A list of tools by trade is necessary on large projects where there may be several hundred men of each trade who have to be supplied with tools. In this case, too, a tool crib system must be set up to handle the tools and keep them in repair.

Shop equipment

On each of the larger projects, which include mechanical and electrical as well as building work, it is usual to provide some shop facilities for the maintenance and repair of equipment and for the fabrication of small items entering into the work.

The estimator should provide for the cost of tools required in the job estimate. If the job being estimated is of considerable size, it will be necessary to list the tools required and price them or have them priced from the contractor's book of accounts. In many cases, the prices will be at depreciated values, since the tools have been used. The books should show the current cost of the tools on the contractor's inventory as the information is required in setting up his annual statement and tax record.

Many times the estimator does not have the time to list all the small tools required for each estimate he makes, and will need to be satisfied with taking a percentage of the cost of the work to cover all such items. If work is confined to buildings only, the small tools are usually a minor item—not over one per cent of the total. If the work is largely mechanical and electrical, the cost will increase at a rapid rate. In this case, the estimator will be forced to make a detailed list and analysis.

If the estimator has systematically and progressively compiled the estimate, it is a simple matter to refer to the total trade quantity and money requirements and, from a knowledge of field requirements, estimate the tool requirements. In this case, the estimator may depend on his field experience and a detailed knowledge of field operations.

Whether the estimator has listed the tools or only provided a lump-sum allowance, it will be necessary for the project manager, superintendent, or someone delegated by the estimator to check tool requirements and see to it that they are ordered and transported to the job site.

Ordering tools

Ordering tools may take the form of purchase, transfer from other work, or a requisition on warehouse stocks. The project manager must approve the order, since he will determine what methods will be used on the job and the selected methods will regulate the kind and number of tools needed.

In purchasing or renting equip-

(*Continued on next page*)

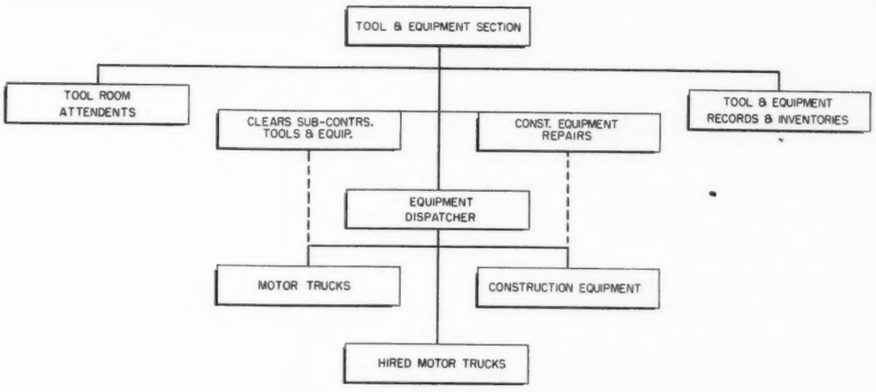


Figure I

For more facts, use Request Card at page 18 and circle No. 243

SHIPPING MEMORANDUM

Geo. E. Duthmaye & Son

MAIN OFFICE—LAKE WORTH, FLORIDA

CONSIGNED TO_____ FIELD OFFICE

ADDRESS_____ ROUTE_____ CAR NO._____

SHIPPED FROM_____ FIELD OFFICE

ADDRESS_____ W O NO._____

DATE OF SHIPMENT_____ CHECKED BY_____

_____ SUPT. _____ CLERK _____ OWNER

SHIPPER MUST FORWARD THIS COPY TO MAIN OFFICE AT ONCE AND INCLUDE INVOICE FOR SAME IN REGULAR MONTHLY BILLING TO MAIN OFFICE

LIST MACHINERY SUBJECT TO RENTAL ON SEPARATE SHEET AND DO NOT SHOW COST OR VALUE

QUANTITY	DESCRIPTION	VALUE NEW	PRECENT VALUE	
			% OF COST	AMOUNT

Figure 2

The form is particularly handy if the equipment is being rented on an hourly basis, or is charged off to the various projects on an hourly basis. The form is usually made in triplicate, with one copy going to the cost department.

Toolrooms and cribs

On a small job, tools may be housed in part of the field office, storeroom, or other temporary buildings, with or without a toolroom attendant. The toolroom attendant may also combine this duty with checking and receiving materials in connection with the storeroom.

Small, temporary toolrooms or cribs, strategically located near the places of work, are an absolute necessity on larger jobs. The number and size of the toolrooms and cribs will depend on job circumstances and the time lost by men in traveling to and from the crib. If and when lost time amounts to more than the wages of the toolroom man, the crib should be moved closer to the work site.

The most common procedure for handling small tools on construction is to erect a small temporary building with small bins of sufficient number to hold all the tools. The crib should have one or more Dutch doors that can be opened to distribute tools to the workmen.

Brass Check System

Under the Brass Check System, each employee is given a numbered identification badge and ten brass tool checks. The employee signs a re-

(Continued from preceding page)

ment it is always economical to standardize on one make, in order that one may have the advantage of interchangeable and standard parts which fit several machines. This also enables quantity discount purchasing and standardization of parts.

Regardless of the type of contract, either lump sum or on a fee basis, the tools and equipment shipped to and from the job and their value should be carefully provided for. Tools shipped to a fee contract should have their current value approved by the owner so there will be no misunderstanding later when invoicing.

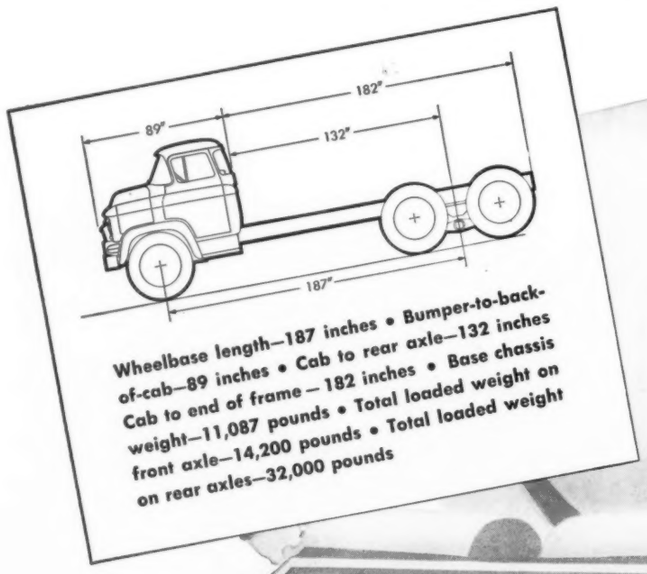
A convenient form for this purpose, shown in figure 2, is the shipping memorandum made in triplicate —one copy each for the consignee, main office, and the job files.

The Associated General Contractors of America, Inc., have a printed form, the Equipment Record, primarily designed for contractor-owned equipment, but it can be adapted as a record of rented equipment. This form provides an inventory record, repair record, and record of income from renting to others.

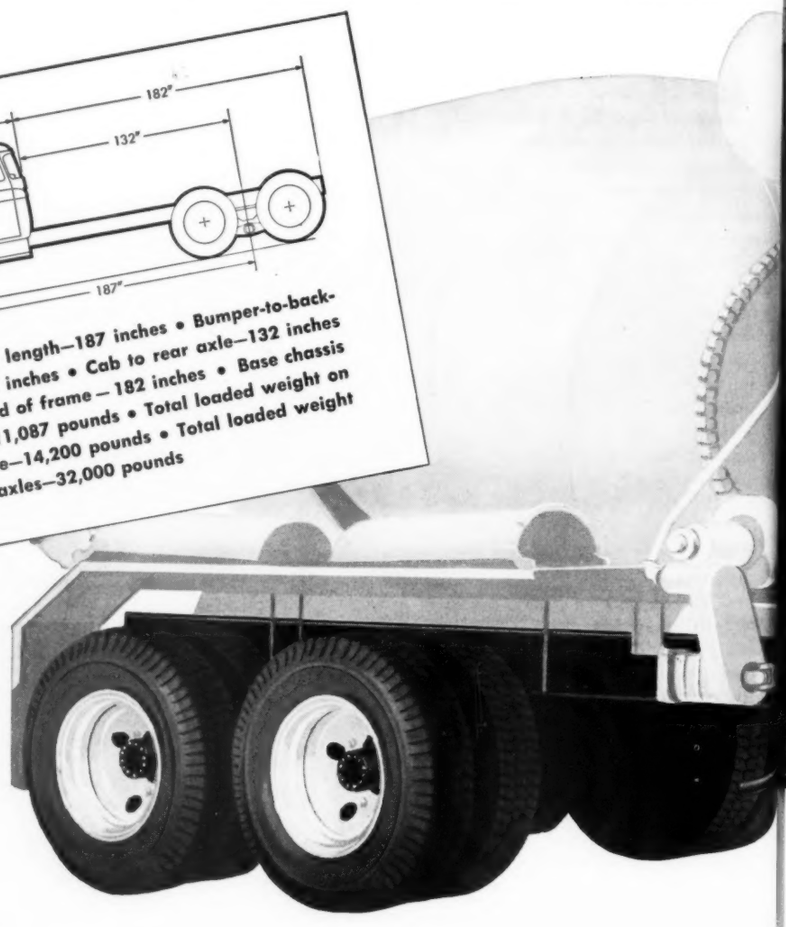
In order to facilitate the ordering of spare parts from the manufacturers, a standard form has been approved by the Joint Committee of Construction Equipment Manufacturers and the AGC.

A form specifically designed for keeping a detailed record of rented equipment on the job, figure 3, includes space to record all payments. When enough money has been paid to invoke the recapture clause, this will be indicated by the record. This form is particularly useful on fee contracts or on federal contracts, where the detailed record must support the invoicing.

On all large work it is essential to know such things as the location of all equipment, the hours worked and where, and the amount of idle time. An Equipment Field Check Sheet is designed to record all these matters —generally under the supervision of the dispatcher who sees to it that all of the equipment is where it ought to be, does what it is supposed to do, and is moved promptly to the next job.



Wheelbase length—187 inches • Bumper-to-back-of-cab—89 inches • Cab to rear axle—132 inches Cab to end of frame—182 inches • Base chassis weight—11,087 pounds • Total loaded weight on front axle—14,200 pounds • Total loaded weight on rear axles—32,000 pounds



Now - haul 7 yards of

in nearly all of the 48 States!

GMC's spanking-new FW556 is your truck! For no other regular, in-production model anywhere can haul 7 full yards at a clip — even in states with limitations as low as 46,400-lbs. gross

You see, this rig's all "muscle": with ⅜-inch heat-treated frame rails that eliminate the need for reinforcement — rubber "biscuit" mounting instead of steel springs—aluminum saddles and wheels.

The pay-off is a vehicle weight of only 11,087 pounds. Add 6,760 lbs. for a lightweight mixer, and you still have room for 28,350 lbs. of payload—all within a 46,200-lb. total.

RENTAL EQUIPMENT
GEO. E. DEATHERAGE & SON

Equip No. & Station

Type _____ U.S.Registered No. _____

Stock No. _____ Year _____ Contract Value: _____

New ☐ Used ☐ Model

Name of Mfgr. _____ Rental: Per Hr _____ Per Mo _____

Description _____

Attachments _____

License No.: _____ Serial No.: _____

Size: _____ Motor No.: _____

Owner and Lessor: _____ Address: _____

Original Shipping Point: _____ Approx. Date Rent Equals Value: _____

Amount of Encumbrances: _____ Final Lien Paymt Date Due:

Lien Holder: _____ Address: _____

Remarks: _____

FIG. 152

STATION	RENTAL PAYMENTS				RECAPTURE		
	Start	Stop	"Accrued"	Total To Date	Value Plus 10% Minus Accrued Rent	Paying Station	Condition

Record of Accrued Monthly Rentals

Station

Jan.
Feb.
Mar.

Figure 3

ceipt for these, and the receipt is returned to him when he leaves the employ of the contractor. The ten brass checks permit the workman to draw out ten tools from the tool crib, which he uses during the shift and then returns at quitting time.

As the workman presents the brass checks for the tools, the toolkeeper takes the tool from its respective bin and with it a small paper metal-rimmed check with the name of the tool on it. The toolkeeper places the paper tag and the brass check together on a small hook, evidence that the workman whose number is on the brass check has the tool which is described on the paper tag. When the tool is returned, the brass check is returned to the man and the paper check or tag is put back on the bin.

If an individual workman requires a complete kit of mechanic's tools, the tools are listed on a different receipt which is retained by the toolkeeper until the box of tools is returned in good order.

The timekeeping department or cashier should not pay any employee off until the workman presents a tool clearance to the effect that he has returned all tools.

(Next month's article will deal with "Planning and production—Handling tools and equipment at the site".)

U. S. Steel appoints

United States Steel Corp., Pittsburgh, Pa., has appointed John A. Hagan and John D. Peters as assistants to the vice presidents of operations and purchases, respectively.

Robert W. Graham succeeds Hagan as general superintendent of the company's Homestead District Works, and Peters is succeeded by Robert F. Benson, as manager of purchasing research.

John W. Price replaces Graham at Duquesne Works, and Charles J. Fleisch takes over Price's former post at the Edgar Thomson Works in Braddock.

Paxton-Mitchell buys assets of Reisser Corp.

The Paxton-Mitchell Co. of Omaha has purchased the assets of the Reisser Corp., Blair, Nebr., and made the Reisser Corp. a new division, Jebco, Inc. Jebco will make the Elegrader, an attachment for Adams and Caterpillar motor graders, and the dolly crane, which is used to equalize axle weight on the Model C Tournapull to enable the rig to meet highway axle weight distribution requirements.

Ira Trachtenbarg is plant manager of the new division, and James R. Walkley is sales manager.

Hercules Steel names

Harry McCormick has been appointed sales manager of Hercules Steel Products Co., Galion, Ohio, maker of dump bodies and hydraulic hoists, dump trailers and other types of truck-mounted equipment. With Hercules since 1947, McCormick most recently served as sales manager of the company's Unisteel Body Division.

Pioneer appoints

Fred W. Martlage, formerly sales promotion manager for Pioneer Engineering, division of Poor & Co., Minneapolis, Minn., has been promoted to district sales representative for the firm in the states of Wisconsin, Michigan, Indiana, and the province of Ontario.

He replaces C. G. Sears, newly appointed sales manager, who supervises the activity of Pioneer's district sales forces, and works with distributors in the application of equipment to specific construction needs. Pioneer manufactures asphalt plants and components.

ILLUSTRATED GMC FW556 MONEY-MAKER is just one of a complete line of GMC's *extra-stamina-engineered* for construction work. They're available with conventional, dual-purpose or c.o.e. cabs—gasoline or Diesel power—regular or Allison Torqmatic* transmissions.

**Optional at extra cost*

dof mix every trip

Power to haul these extra-size loads comes from GMC's 370-cubic-inch V8. It delivers 232 high-torque horsepower that takes on the toughest on-and-off-the-road work without breathing hard. And it turns the 7-yard barrel, too—through its front-end PTO.

But the real eye-opener is its price tag! For all these advantages are yours at a figure *hundreds of dollars* lower than anything else close to its class. Check that at your GMC dealer's!

GMC TRUCK & COACH—*A General Motors Division*

GMC-America's Ablest Trucks

Available in models from ½ to 45 tons

For more facts, use Request Card at page 18 and circle No. 244

For more facts on insert, circle No. 246→

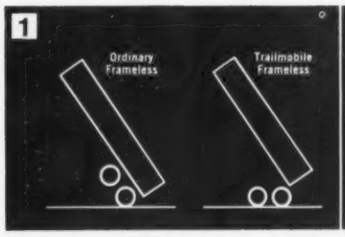
Making a bench wide enough for scrapers, an International TD-24 tractor with Bucyrus-Erie dozer pioneers a sidehill cut for the Flesher Pass Road relocation near Helena, Mont.

Pioneering work for cuts is big job on mountain road

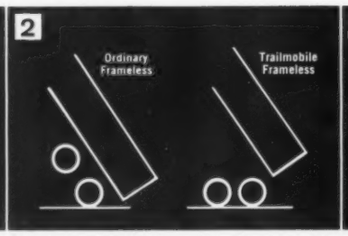
Tractor-dozers carve out benches on steep slopes to permit scrapers to start excavating cuts

NEW TRAILMOBILE FRAMELESS DUMP TRAILER

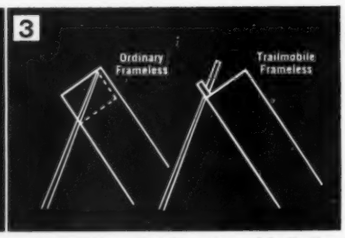
allows up to 3000 lbs. extra payload · offers five unbeatable features



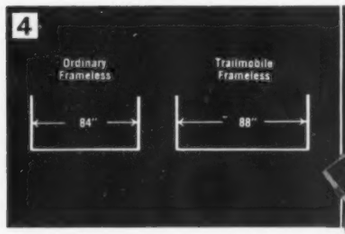
More stability—*Both axles, all 8 wheels, stay on the ground* throughout dumping cycle, whether spreading or stockpiling.



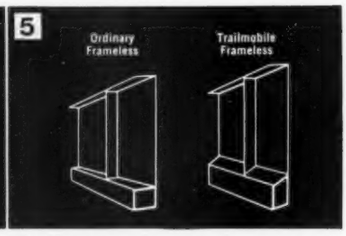
Better stockpiling—Spill point *remains 43¼" high* while piling—almost double that of ordinary frameless dumps.



Extra cube—Newly patented *bail* eliminates space consuming doghouse . . . lowers lift point for added stability.



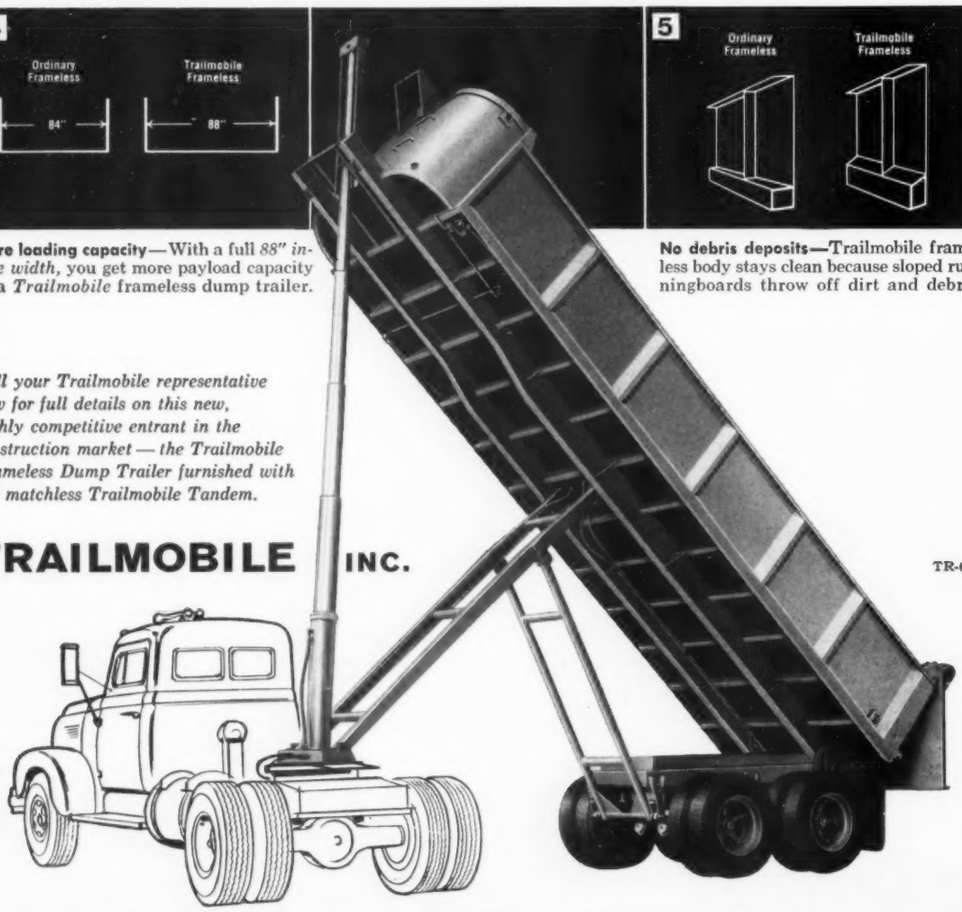
More loading capacity—With a full *88" inside width*, you get more payload capacity in a *Trailmobile* frameless dump trailer.



No debris deposits—Trailmobile frameless body stays clean because sloped runningboards throw off dirt and debris.

Call your Trailmobile representative now for full details on this new, highly competitive entrant in the construction market — the Trailmobile Frameless Dump Trailer furnished with the matchless Trailmobile Tandem.

TRAILMOBILE INC. TR-668



CINCINNATI 9, OHIO • LONGVIEW, TEXAS • SPRINGFIELD, MISSOURI • BERKELEY 10, CALIFORNIA

For more facts, use Request Card at page 18 and circle No. 245

Pioneering the cuts was one of the most important and most difficult operations during the grading of the Flesher Pass Road between Helena and Lincoln, Montana.

This job called for a 6-mile section, leading from State Route 20 up toward the summit, to be realigned and graded. This was a $250,000 contract which Earl L. McNutt Co., Eugene, Oreg., handled for the Montana State Highway Commission. Surfacing of the section will be done under a separate contract.

The new alignment follows the same valley as the old Flesher Pass Road. Sometimes the new alignment follows the old road; sometimes it leaves the meandering old road to slash through a hill or across a valley. Naturally there were a number of crossings of the old and new roads. Keeping the old road open for traffic under these conditions complicated the contractor's operations.

The lowest point on the job is just under 5,000 feet above sea level; the upper extreme is over the 5,500-foot level. While this elevation in itself created no particular hardship, it did mean that the work season in this northern Montana area would be very short. With 500,000 cubic yards of earth and rock to be moved in rough, mountainous grading, there was no time to be wasted.

Dozers pioneer cuts

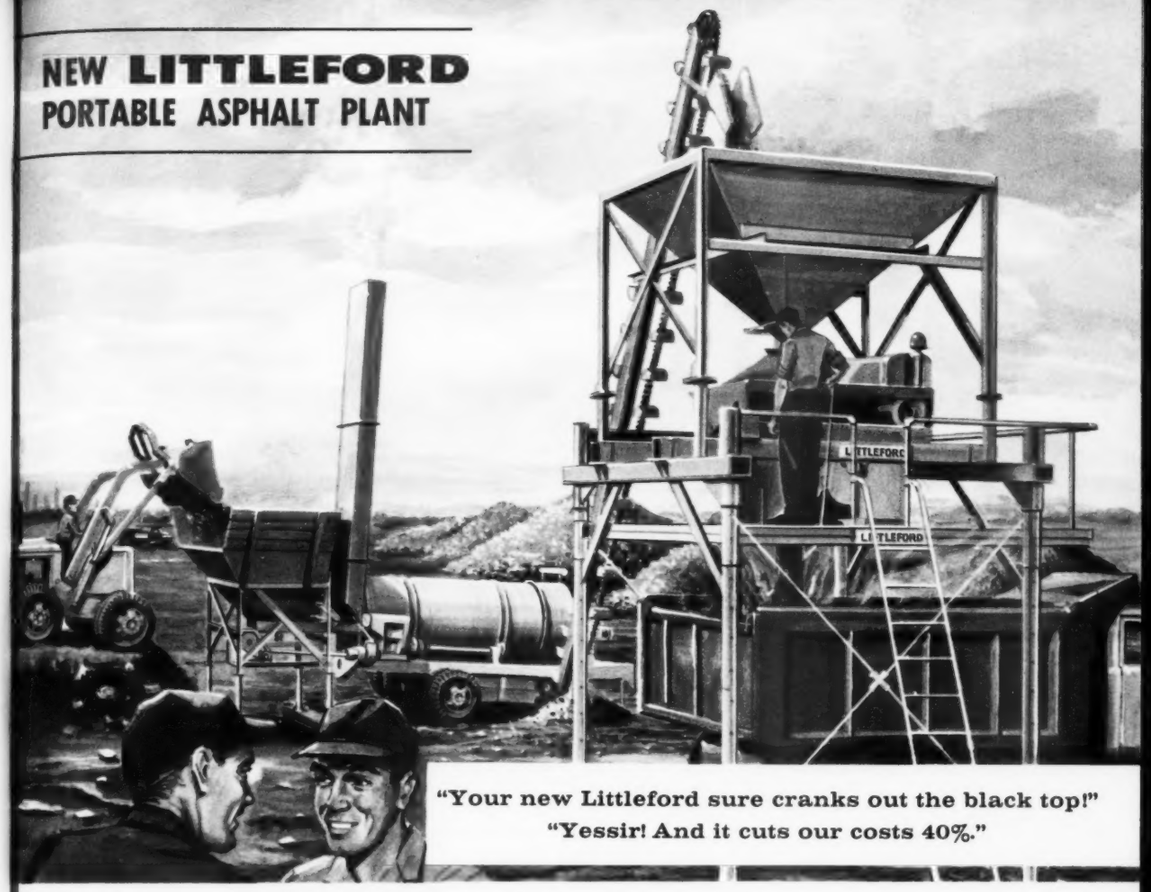
The right-of-way had been cleared previously under a separate contract, leaving the contractor free to start pioneering as soon as crews moved in. Several tractor-dozers began this work on the hillside cuts even as other equipment, offices, and shops were being assembled at the site.

An International TD-24 tractor with a Bucyrus-Erie cable dozer, two Cat D8 tractor-dozers, a Cat D6 with angledozer, and a No. 12 motor grader got the job started. As the tractor-dozers scratched out the pioneer roads to the tops of the cuts, the motor grader kept busy patrolling the old roadway and blading off the material, which rolled down the steep slopes.

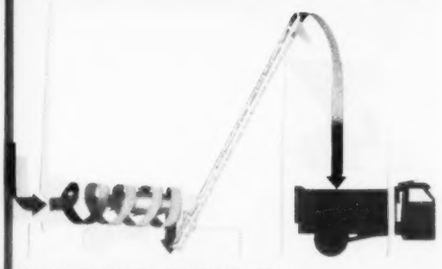
Starting at the beginning of a cut, the tractors were usually able

(*Continued on page 59*)

NEW LITTLEFORD PORTABLE ASPHALT PLANT



"Your new Littleford sure cranks out the black top!"
"Yessir! And it cuts our costs 40%."



TOP EFFICIENCY IN ASPHALT PLANT DESIGN AND OPERATION

1. Dual feeder bin proportions and feeds aggregate directly into dryer.
2. Rotating steel dryer quickly and efficiently dries aggregate.
3. Hot elevator delivers a continuous cascade of aggregate into storage hopper.
4. Storage hopper holds and discharges aggregate as required.
5. Batching hopper measures aggregate in exact 10 cu. ft. batches in reserve for the pugmill.
6. Pugmill thoroughly mixes hot dried aggregate and bitumen into a hot bituminous concrete.
7. Self-elevating platform permits discharging of bituminous concrete directly into trucks.

***Contractors: Make Money** with your own asphalt plant. Get the facts—mail this airmail card today for your free copy of bulletin 37 giving complete information.*

n U.S.A.

The 30-ton rated capacity of the new Littleford Portable Asphalt Plant now gives contractors big plant performance at small plant cost. Saves up to 40 % on bituminous concrete costs . . . because the contractor can use his equipment more efficiently. Labor costs are drastically reduced, too, because you can take the Littleford Portable Asphalt Plant right to the job site.

With his own independent source of bituminous concrete, the contractor has complete control. He can plan and carry out black top operations when and where he wishes, around the clock and around the calendar.

The new Littleford Portable Asphalt Plant is quality built . . . for continuous output, for producing all types of mixes at lowest cost. Investigate this new plant today . . . discover the money-making possibilities *you* can realize!

LITTLEFORD SPRAY MASTER

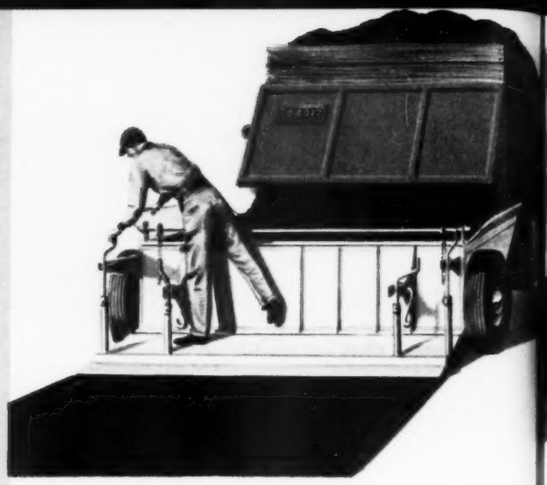
BITUMINOUS DISTRIBUTOR

Design ingenuity has built into the Littleford Spray Master an *unequalled* combination of engineered features that assure faster, better and cheaper spraying. Two of these are illustrated here:

Single Lever Control—Not four confusing levers, but one easily operated capstan-type handwheel for fast action. Controls spraying, tank circulation, transfer and draining operations—and filling, too.

Unobstructed Operator View—There are no overhanging obstructions to hide the bar. It's fully visible to the operator, allowing immediate on-the-spot adjustments for complete coverage.

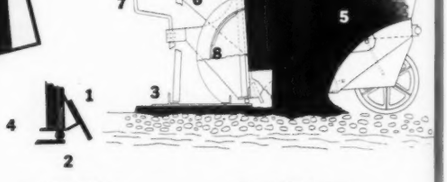
There are many other exclusive Littleford design and operating advantages that make the Spray Master first choice of black top contractors everywhere. For complete information, send for bulletin 14 . . . use convenient airmail reply card below.



TRUE-LAY PAVER-SPREADER

It's the compaction that counts . . . and you can count on True-Lay for true compaction. Reason: the Littleford True-Lay is heavier, and it's designed so that 75% of the combined weight of the unit and the asphalt is brought to bear on the screed.

The 2-in-1 tow type True-Lay does double duty: (1) paves a mat from 4-ft. to 10-ft. wide, up to 6" in depth; and (2) spreads 4" maximum size stone. For bulletin 33 containing further information, mail reply card below.



1 strike-off blade
2 compaction chamber
3 adjustable screed
4 screed hinge
5 material hopper
6 patented balancing beam
7 jacks for adjusting screed
8 balancing wheel
9 jacks for adjusting balancing wheels

LITTLEFORD

WORLD'S
MOST COMPLETE LINE
COMPLETELY ENGINEER
BLACK TOP EQUIPMENT

SEND AIRMAIL REPLY CARD
REQUEST YOUR FREE LITERATURE

Using an angledozer, a D6 works another bench. Rocks and dirt rolling onto the old road below will be cleaned up by a motor grader.

The 3,300-gallon tank on this Ford F-800 truck is used to haul water for compaction and dust control. It takes a Jacuzzi 6-inch pump, powered by a Ford V8 engine, just two minutes to fill the tank at this pond.

(*Continued from page 56*)

to work their way up along the top edge of the cut, following the slope stakes. As they went, they scratched out enough dirt and rock to build a bench wide enough for their own operation. Then this bench had to be deepened and widened to provide access for the scrapers. At the same time, the pioneering tractors dressed the tops of the 1½ to 1 slopes as they cut the benches lower. Sometimes it was possible for the motor grader to help on the sloping, but many times the dozers had to trim a finished slope as they went, since there was no way to get a machine back up the slopes once they were cut.

While the maximum cut on the job was 51 feet deep and the maximum fill 70 feet, it was not unusual to find the tractors pioneering a cut considerably higher than this above the old road. Where these sidehill cuts had to be started uphill from the old road, the dozers first cut out a bench or trench just above the old road to catch the rocks and other material which might come rolling down the hillside. These trenches caught a lot of material which ordinarily would have landed on the road to become a traffic hazard.

Scrapers move dirt

By the time the scrapers arrived at the job, there were several cuts ready for them. Most of the material on the sidehill cuts was moved by tractor-drawn scrapers, two Cat 90 scrapers and three LeTourneau-Westinghouse NP and FP scrapers drawn by D8's. Three rubber-tire DW20 scrapers were used on some of the longer hauls.

When rock was encountered—from the surface on down in most cuts—rippers loosened and broke up the material so that it could be loaded by the scrapers. One LeTourneau-Westinghouse K-30 ripper was handled by the D8 and TD-24 tractors. Another D8 was equipped with an Ateco rear-mounted ripper.

On the fills, compaction was obtained by the heavy tractors and scrapers running over material spread out and shaped by a D6 trac-

(*Continued on next page*)

Joy Blast Hole Drilling Systems... Performance We Can Prove

When you stack up the performance of a Joy TWM-5 Challenger Drill using the specially designed Joy Tungsten Carbide bits and drill steels . . . add the reliable Joy RP-900 Airvane Rotary Compressor . . . you have a matched Joy Drilling System that will bottom large blast holes *quickly* and *economically.* This is one of a series of matched combinations for all hole sizes and depths which make up the Joy line of drilling systems.

Because Joy Equipment is engineered for modern drilling practices . . . and built for unequalled field reliability, the Joy Components: compressors, drill rigs, shanks, steels, couplings and tungsten carbide bits become a complete drilling system for guaranteed performance. *The Joy drilling system will out-perform competitive equipment anywhere.*

For the CONSTRUCTION AHEAD . . . for getting the rock drilled at the lowest possible cost . . . ask the nearest Joy Distributor to show you how the Joy matched drilling system will increase your profit. Ask for a demonstration. Get *your* share with Joy. Write ***Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.*** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

WSW C 6978-223

JOY... EQUIPMENT FOR CONSTRUCTION... FOR ALL INDUSTRY

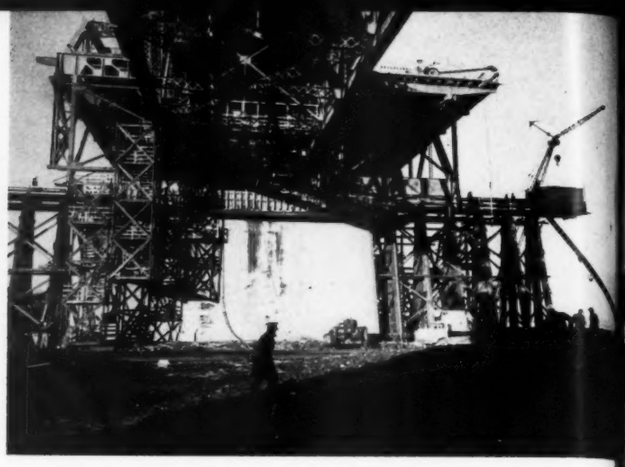
Write for free bulletin 223-21

PORTABLE AND SEMI-PORTABLE AIR COMPRESSORS • ROCK DRILLS • WAGON DRILLS • DRILL BITS • BACKFILL TAMPERS • SPADERS
PAVING BREAKERS • SHEETING DRIVERS • DRIFTERS • PORTABLE HOISTS • FANS AND BLOWERS • PORTABLE SAFETY LIGHTING

For more facts, use Request Card at page 18 and circle No. 247

Construction camera

A big levee job near Lake Providence, La., means a big earthmoving job for C. W. Vollmer & Co., Inc., Harvey, La. One of the contractor's Euclid SS-18 scrapers is being push-loaded by a Euclid TC-12 in the borrow pit. Four of these combinations are being used on the job.



Additional clearance for St. Lawrence Seaway traffic is provided at the Jacques Cartier Bridge at Montreal, where the old 250-foot span across the channel, right, is being replaced by a through span. Dominion Bridge Co., Ltd., Lachine, Quebec, is also raising the bridge another 50 feet.

(*Continued from preceding page*)

tor-dozer. Water for compaction and dust control was obtained by partially damming the stream which ran down the valley. A Jacuzzi 6-inch pump, driven by a Ford V8 engine, pumped water from the pond at a rate that filled the 3,300-gallon water truck in two minutes. The water tank was mounted on a Ford F-800 long-wheelbase truck. The spraybar valve was air-actuated to permit the driver to open and shut the valve quickly and without leaving his seat.

Personnel

Supervising the project for Earl L. McNutt Co. was superintendent Charles F. Engle. The project engineer for the Montana State Highway Commission was Dean W. Poole. This project was under the supervision of district engineer Ben Briscoe of the Great Falls Division. Lehman B. Fox is construction engineer for the Commission.

THE END

Brochure describes Bethlehem Steel films

An illustrated brochure, "Motion Pictures by Bethlehem Steel Company", has been issued for 1958 by the company and may be obtained by writing to Publications Department, Bethlehem Steel Co., Bethlehem, Pa.

The 16-mm films, in color or black and white, cover nearly all phases of the firm's operations, from production of raw materials, through the manufacture and metallurgy of steel to finished products, fabricated steel construction, and shipbuilding. Films may be secured by writing to the Publications Department, Bethlehem, Pa.; in Canada, write to Bethlehem Steel Export Co. of Canada, Ltd., 804 Dominion Square Bldg., Montreal.

Constructors Association appoints D. Showalter

The Constructors Association of Western Pennsylvania has appointed David M. Showalter as field representative. His duties are in the fields of safety engineering, industrial relations, and trade specifications.

Now from FORD

New Ford C-1000 with the 260-hp. 477 Super Duty V-8 engine. Maximum GVW 31,000 lb., GCW 65,000 lb.

New Ford T-850, choice of 3 engines. Choice of 2 bogies, up to 45,000 lb. GVW and 70,000 lb. GCW.

New Ford F-1100 with the 277-hp. 534 Super Duty V-8 engine. Maximum GVW 36,000 lb., GCW 65,000 lb.

AMERICAN BUSINESS BUYS MORE FORD TRUCKS THAN ANY OTHER MAKE!

Driving piles to a depth of 100 feet on the Mansfield bypass section of State Route 30 in Ohio is only one big job for this Manitowoc Model 2000 25-ton crane with Vulcan hammer. On this job, which requires about 70,000 linear feet of tubular piling, the crane is also used for clamshell and dragline work.

A fast pipe-laying operation is being done for a new housing project in Wickliffe, Ohio. An International TD-9 backfills the storm sewer pipe and cast-iron water pipelines while an American 300 backhoe excavates the trench. Dan Cannavino, Cleveland, is handling the job.

engines up to 534 cu. in...

Biggest truck engines ever built by Ford! Three all-new, Super Duty V-8's designed to stand up and deliver on America's toughest truck runs. 401-, 477- and 534-cu. in. displacements. Up to 277 hp.! Ten all-new extra heavy duty truck series rated up to 75,000 lb. GCW.

Perhaps the biggest news about Ford's all-new Super Duty V-8's is not their bigness . . . not their tremendous power output. The big story may well be in the many durability advancements, offered in the most rugged, most dependable Ford Truck engines ever built.

For instance, materials developed for the missile program are used in parts such as valve stem oil seals. Oil filters are of the same type used in commercial aircraft. The traditional exhaust-heated intake manifold is replaced by a new water-jacketed induction system. Submerged-type electric fuel pumps virtually banish vapor lock. Head gaskets are of heat-resistant stainless steel. Two compression rings and the oil control ring are chrome-plated for longer wear. A 50-amp. alternator replaces the generator as standard equipment.

These are but a few of the many advancements you'll find in Ford's thoroughly tested all-truck Super Duty V-8's for 1958. Tested in dynamometer laboratories, tested on the proving grounds, tested in commercial fleets from coast to coast . . . these new Ford V-8's, products of over six years of engineering development, are now ready to serve you.

Get in touch with your Ford Dealer for complete data on the three all-new Super Duty V-8's, and the *ten* all-new Extra Heavy Duty truck series, including tandems up to 51,000-lb. GVW, 75,000-lb. GCW, single-axle trucks up to 36,000-lb. GVW, 65,000-lb. GCW.

NEW! Three all-new engines—*401* cu. in. V-8 develops 226 hp., 350 lbs.-ft. torque . . . *477* cu. in. V-8 develops 260 hp., 430 lbs.-ft. torque . . . *534* cu. in. V-8 develops 277 hp., 490 lbs.-ft. torque.

NEW! Water-jacketed induction system contributes to maximum power output with excellent economy by providing more positive temperature control of fuel-air mixtures.

NEW! Fully machined combustion chambers and Turbulence-top pistons provide more accurate compression control and greater fuel-air turbulence, for top performance with regular grade fuel.

NEW! Submerged-type electric fuel pump virtually eliminates vapor lock. Pump delivers only solid fuel, always under pressure, operates independently of engine speed.

NEW! Valve seat inserts for intake as well as exhaust valves. Intake valves are hard-faced dished-type. Exhaust valves are sodium-cooled, faced with tungsten-cobalt.

NEW! Three-stage cooling system with separate temperature control for block and head, shortens engine warm-up time.

Big truck built...
Big truck powered...
At Ford's low prices!

FORD TRUCKS COST LESS

LESS TO OWN... LESS TO RUN...
LAST LONGER, TOO!

For more facts, use Request Card at page 18 and circle No. 248

Computer prepares design programs

A two-unit electronic computer is being used by the Portland Cement Association, to prepare programs for design of concrete pavements, structures, and material for design manuals.

The machine, a Bendix G-15D, general purpose digital computer and a DA-1 Differential Analyzer, has been used to prepare design data on dowels for pavement, barrel-shell roofs, and box culverts. Programs are also being developed for design of prestressed bridges, using the standard sections developed both by the Bureau of Public Roads and the American Association of State Highway Officials.

Paradynamics controls Four Wheel Drive

Paradynamics Inc., St. Louis, Mo., research and development corporation, has gained controlling interest in Four Wheel Drive Auto Co., Clintonville, Wis., with the purchase of 151,000 of the company's 300,000 outstanding shares.

This transaction is expected to strengthen FWD as a maker of specialized trucks for such markets as construction, ready-mix, oil-field, road maintenance, and military applications.

George E. Mallinckrodt, president of Paradynamics, has been elected chairman of the FWD board, with Franklin Lyons, former chairman, continuing as a director.

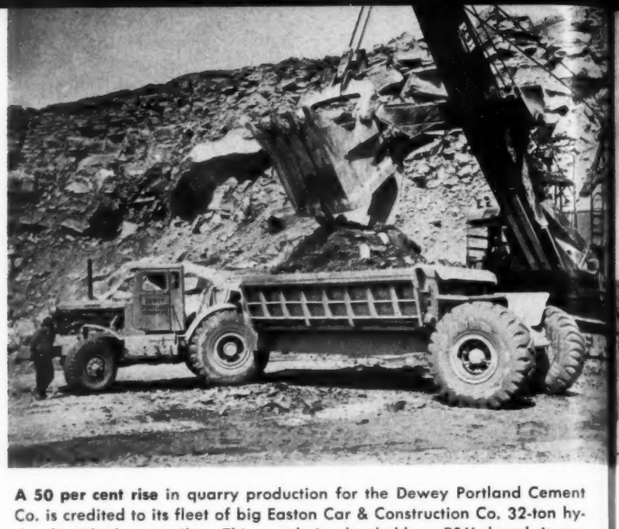
NYU dean heads study on new research center

Dr. Thorndike Saville, specialist in problems of water resources development and administration, and dean emeritus of New York University's College of Engineering, has been named to head a study on the development of the University of Florida's science and technology center.

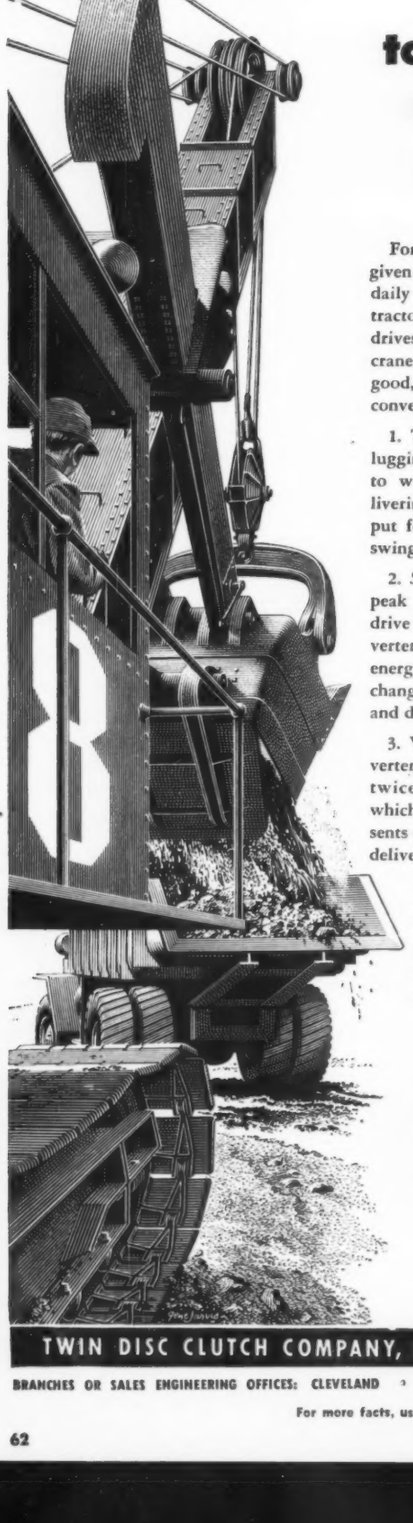
The study, concerned with bringing the scientific professions and pure scientists into closer relationship, is being financed by a grant from the Ford Foundation.

Construction camera

On-the-job training in the operation of a Worthington wagon drill is given native workmen on a $15 million highway project in Cambodia. A. L. Dougherty Overseas, Inc., New York, N. Y., the contractor on the 130-mile-long highway, is also training the 400 Cambodians on the job to service and operate other rigs.



A 50 per cent rise in quarry production for the Dewey Portland Cement Co. is credited to its fleet of big Easton Car & Construction Co. 32-ton hydraulic side-dump trailers. This one, being loaded by a P&H shovel, is one of four being used in the shovel-to-crusher shuttle service.



Here's why torque converter equipped machines do *more* work at *lower* operating cost

For higher work capacity on any given load, and for greater all-round daily production, more and more contractors are specifying torque converter drives in their new excavators, erecting cranes and loaders. And here are five good, profitable reasons why the torque converter is the preferred type of drive:

1. The torque converter eliminates lugging and stalling . . . permits engines to work at maximum efficiency delivering constant high-horsepower output for heavy digging loads and fast swinging.

2. *Smooth* converter power reduces peak loads throughout the machine's drive train because fluid within the converter absorbs much of the impact energy caused by quick drum speed change . . . thus protecting *both* driving and driven equipment.

3. When necessary, the torque converter smoothly delivers approximately twice normal torque to the drum, which, at slow digging speeds, represents an important advantage in power delivered to the dipper.

4. Cable life is extended since no sharp impact loads ever reach cables through the torque converter . . . constant line tension is maintained . . . there's no jerking or snapping.

5. An infinite variety of ratios is available to work with . . . permitting smooth, accurate, *safe control* of loads and delicate "inching" and "holding" under power . . . as well as adjusting for wide variations in dipper loading, substituting greater digging effort for speed, when required.

Wherever earth and rock are moved, wherever steel is erected, you'll find contractors using these five advantages *. . . to convert their horsepower into greater-than-ever profits!*

• • •

Twin Disc Torque Converters—*three-stage* or *single-stage*, from 30 to 1000 hp—are available from all leading manufacturers of heavy-duty machines. Be sure to specify one in your next unit. Take advantage of the five reasons why torque converter equipped machines do *more* work at *lower* operating cost.

Twin Disc is the world's leading manufacturer of friction clutches and fluid couplings for heavy-duty industrial applications . . . and the only manufacturer producing *both* three-stage *and* single-stage torque converters. Because of its complete line of industrial drives, Twin Disc can offer *unbiased* recommendations for any heavy-duty power transmission application.

TWIN DISC
CLUTCHES AND HYDRAULIC DRIVES

TWIN DISC
Torque Converters

TWIN DISC CLUTCH COMPANY, Racine, Wisconsin • HYDRAULIC DIVISION, Rockford, Illinois

BRANCHES OR SALES ENGINEERING OFFICES: CLEVELAND • DALLAS • DETROIT • LOS ANGELES • NEWARK • NEW ORLEANS • TULSA

For more facts, use Request Card at page 18 and circle No. 249

Standard Steel Corp. adds to sales, technical staff

Rea Anderson has been appointed chief metallurgist and head of the quality control department of the Standard Steel Corp., Los Angeles, Calif. He will supervise metallurgy, welding engineering, inspection and quality control at that plant, and act as metallurgy and welding consultant to the firm's Leader Iron Works Division in Decatur, Ill.

W. Spence Flinn is the firm's new sales representative for road construction machinery. Headquartered at Chattanooga, Tenn., his territory consists of 13 southeastern states and the District of Columbia.

Euclid film features twin-powered scraper

A 16-mm color movie with sound entitled, "Memo to the Winning Contractor. . . . Why Twins?" has been released by Euclid Division of the General Motors Corp., Cleveland, Ohio.

The film, featuring operation of Euclid's Twin-Power 24-yard-struck-capacity TS-24 scraper, points up the trend to twin-powered units for earthmoving jobs.

The movie may be obtained by contacting Euclid or any of its regional offices.

Harnischfeger expands

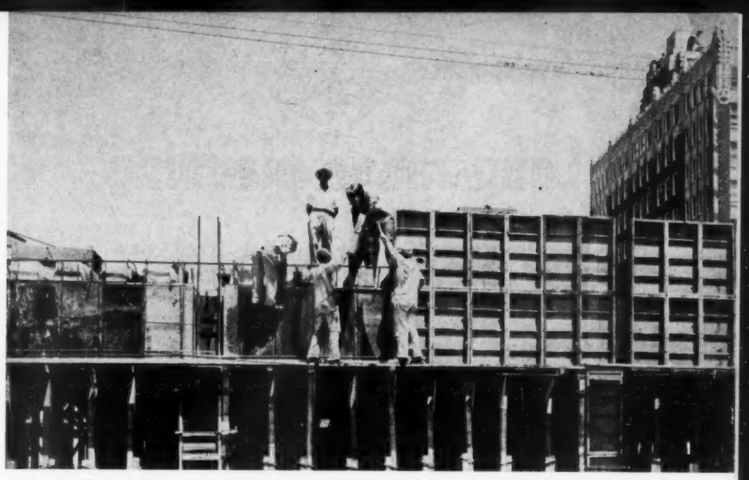
Harnischfeger International Corp. S. A., a subsidiary of Harnischfeger Corp., Milwaukee, Wis., has opened new sales offices in Caracas, Venezuela, and in Tokyo, Japan.

Heading the Caracas office is Odis Small, Jr., covering South America from Colombia to French Guiana, and the West Indies. At his post he works with the P&H dealer organization in his territory, and promotes sales of the entire line of P&H products.

Odd Stray-Gunderson is Far East resident manager in charge of the Tokyo office. His territory consists of Japan, the Philippine Republic, Korea, Formosa, Tahiti, Indonesia, Hong Kong, and Southeast Asia.

Keep Red Cross strong—give today

A lifeline of water for the agricultural area of California's Monterey County will be supplied by an earth-fill-type dam being built across the Nacimiento River. The Lorain 25-ton Moto-Crane is installing a section of 54-inch steel conduit pipe through the base of the 1,550-foot-long dam.



A new office building goes up in the downtown section of Oklahoma City, Okla. Workmen are forming a spandrel beam, 69½ inches high and 7½ inches thick, which runs around the outside walls. Symons 4-foot forms are being used for the inside wall and two 4-foot forms, one atop the other, for the outside 8-foot wall.

Raymond Concrete Pile offers engineering award

The Raymond Concrete Pile Co., New York, N. Y., has established the Alfred A. Raymond Award "to encourage originality in research and development in the field of foundation engineering". The $1,000 annual award is named for the founder of the international foundation and construction firm.

Participants in the competition—practicing and professional engineers, faculty members of accredited engineering schools, and graduate students—are to prepare papers on any phases of the design and construction of foundations for structures. Those interested in submitting papers, before the September 1 deadline, should register and receive complete instructions by writing to the Alfred A. Raymond Award, Room 1214, 140 Cedar St., New York 6, N. Y.

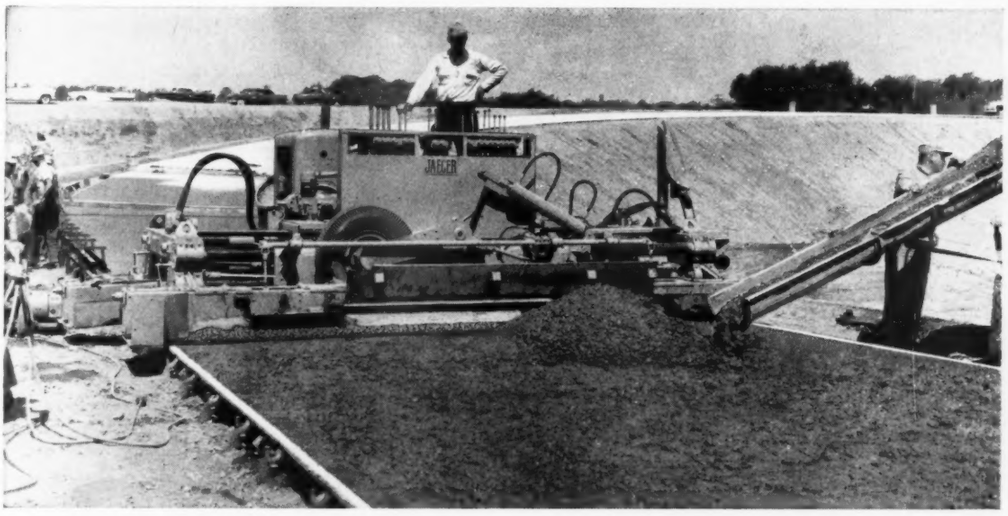
Ellicott subsidiary has name changed

The Novelty Steam Boiler Works, Inc., Baltimore, Md., producer of pressure vessels and special metal fabrications has been renamed Ellicott Fabricators, Inc. The firm is a subsidiary of Ellicott Machine Corp., Baltimore, manufacturer of dredges and dredging equipment.

Japanese firm to produce Clark equipment

Japanese government officials have given final approval to Clark Equipment Co., Benton Harbor, Mich., for a combination equity and licensing agreement with Toyo Umpanki Co., Ltd. Toyo Umpanki will produce Clark industrial trucks and the Michigan line of construction machinery, in Japan.

The agreement gives Clark a substantial interest in the Japanese firm, manufacturer of industrial trucks and tractor shovels, with headquarters and a plant at Osaka and another plant at Ryugasaki. The arrangement also gives Clark an option to acquire additional ownership at a later date, and provides for an engineering fee based upon the production of Clark units.



ALL-HYDRAULIC, SELF-WIDENING FINISHER: Fast, flexible, precision-smooth. Gives you 6′ of infinite width adjustability with the touch of a lever — a tremendous time-saving on today's work. Gives you hydraulic drive and lever control of traction, screeding, diagonal rear screed swing, tamper attachment and transportation wheels. No mechanical transmissions; gear-type hydraulic pumps power every operation. Diagonally adjustable screed, supplied for pitched slab and superelevated curves, lays flush to higher form; single lever changes screed crown as needed. For variable width work, 3′ screed extensions have end shoes which adjust to any width, by worm.

How Jaeger machines cut paving costs

NO OTHER SPREADER CAN DO THIS: Perfect spreading and placement of concrete against both forms, even on superelevated curves, is just one of the exclusive advantages of the Jaeger Screw Spreader. Its screw action completely remixes and densifies the piled material and compacts it solidly against the subgrade and forms, resulting in a uniformly stronger slab free from honeycomb. Can be supplied with oscillating 12″ screed for precision strike-off ahead of finisher for maximum production. Jaeger Spreader-Finisher "teams" have laid up to 7280′ of 12′ turnpike slab in a single 13-hour day, with big cost savings.

LOW COST SPREADING OF AGGREGATES: Lay all the tonnage your trucks can deliver with this inexpensive paver-type Aggregate Spreader — any base or surface aggregate, or plant-mixed stabilized soil for highway or airport base, both base and top for secondary roads, parking areas, drives. Lays widths to 13′, up to 10″ thickness of coarse stone, or as much as 12″ of finer or graded materials. *All traction is on subgrade, never on loose, newly-laid material.* No displacement to cause high and low spots which compress unequally. Floating straight edge runners carry strike-off assembly, average out subgrade irregularities, insure smooth, accurate lay.

For full information on these machines and methods, operating data and prices, see your Jaeger distributor or write us.

THE JAEGER MACHINE COMPANY

701 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS • PUMPS • CONCRETE MIXERS • TRUCK MIXERS

For more facts, use Request Card at page 18 and circle No. 250

Stage development:

Long-range planning for city expressway

Roadways are completed in stages on San Antonio's big expressway system

Rocklike clay on the 3-mile stretch of San Antonio's expressway system is broken up by an Ateco ripper pulled by a D8. This is a 200,000-yard cut near the Fredericksburg Road. A sheepsfoot assists.

Stage development is opening up miles of new roadway on the wheel-shaped expressway system of San Antonio, Texas.

This type of construction makes it possible for a partially completed expressway to be built that will serve the present needs of an area, yet make provision for future needs.

In the least populated areas, for example, only the two expressway lanes are being completed. In the more populated areas, only the two frontage roads are built. In the downtown area, and in certain parts of the loop, construction of both frontage roads and expressway lanes is necessary. Enough right-of-way is acquired so that the entire expressway can be completed in the future, and overpasses are built for the ultimate width of the expressway.

Basically, the system consists of about a 50-mile route, called Loop 13, which will encircle San Antonio. Four main routes will carry traffic from various points on the loop into the city. Since Loop 13 runs in about an 8-mile radius outside the downtown business district, motorists will encounter a wide range of traffic conditions.

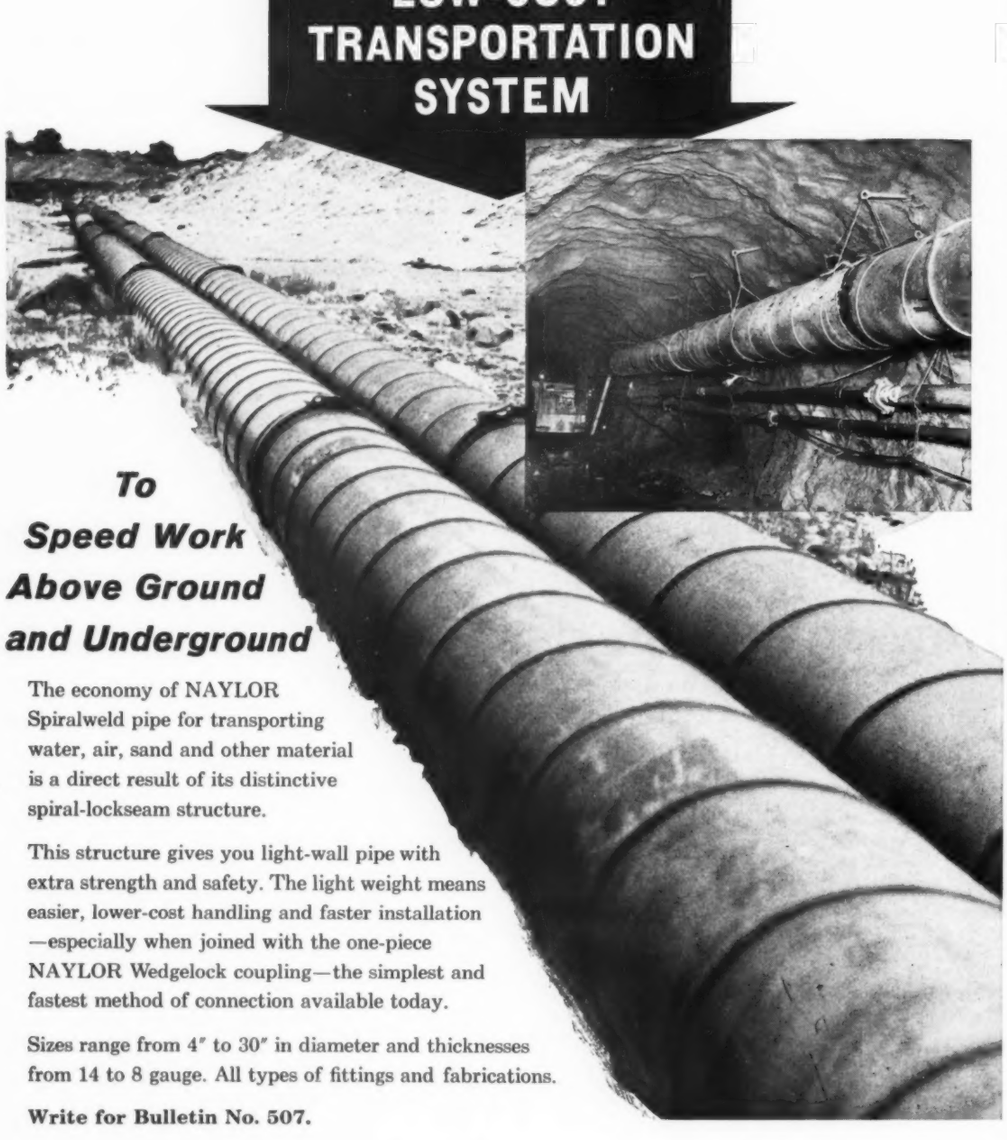
This stage work is particularly suited to the long-range plan for the 120-mile expressway system. Using new Interstate funds, the Texas Highway Department expects to have the entire expressway system ready for traffic in a 10-year period. It will be another eight years, however, before all stages of the system are completed. Sections of three routes leading out of the business district have already been completed, and they are helping to clear traffic in the downtown area. Several sections of the loop are already carrying traffic, and there are many more miles under construction.

Responsible for the greater part of recent construction is Killian-House Co., San Antonio. At one time it held a total of five contracts involving about 10 miles of completed road. Typical of these contracts was a $1,096,093 job to build 3.25 miles of expressway on the northwestern section of the loop. Included also in the contract was the building of four continuous steel-girder bridges to carry expressway traffic over and under intersecting roads.

Two stages on one contract

The east half of the job called for a completed expressway section. This

LOW-COST TRANSPORTATION SYSTEM



To Speed Work Above Ground and Underground

The economy of NAYLOR Spiralweld pipe for transporting water, air, sand and other material is a direct result of its distinctive spiral-lockseam structure.

This structure gives you light-wall pipe with extra strength and safety. The light weight means easier, lower-cost handling and faster installation —especially when joined with the one-piece NAYLOR Wedgelock coupling—the simplest and fastest method of connection available today.

Sizes range from 4″ to 30″ in diameter and thicknesses from 14 to 8 gauge. All types of fittings and fabrications.

Write for Bulletin No. 507.

NAYLOR

NAYLOR PIPE COMPANY

1270 East 92nd Street, Chicago 19, Illinois

Eastern U.S. and Foreign Sales Office 60 East 42nd Street, New York 17, N. Y.

For more facts, use Request Card at page 18 and circle No. 251

A Seaman-Gunnison Duo-Pactor, pulled by an International tractor, compacts the base course of a frontage road. The steel roller has been lifted and the rubber tires are doing the compacting.

A team of rollers compacts the base course to required density. The Duo-Pactor works in front, while a Vibro-Plus vibrating roller, pulled by a Fordson tractor, follows.

involved construction of two 24-foot expressway lanes and two 32-foot frontage roads. All traffic lanes were to have two courses of asphaltic concrete. The west half of the contract, which went through a less populated area, required only the two frontage roads. Curved transition sections connected the frontage roads to the expressway lanes.

A glance at the job statistics shows the huge amount of land necessary to build an expressway such as this one. On this section, the width of the right-of-way was usually 300 feet. That is equal to the length of a football field. To acquire this amount of right-of-way, the highway department had to buy as much as 36 acres of land per mile of expressway.

Earthwork

Killian-House, however, was much more concerned about the quantity of excavation than the amount of right-of-way. Unclassified excavation ran to 436,500 cubic yards. This was mostly clay, with the material approaching joint rock in the deeper cuts.

To move the hard clay, the contractor used six Cat DW15 scrapers with two Cat D8 pushers. At times the earthmovers worked as a unit in one spread and, when conditions required, they split up to work in two spreads. On the 22-foot-deep cut at the Fredericksburg Road underpass, the scrapers ran into some tough going. Here, it was necessary to use a D8 with an Ateco ripper to break up the rocklike clay. After the material had been ripped, a sheepsfoot roller pulled by a Cat D8 broke the big chunks for easy loading by the scrapers.

Spreading the material in 6-inch lifts on the fills was a Cat No. 12 blade assisted by a Cat D8 dozer. A Rome disk harrow blended the material, which was moistened when necessary to bring it to optimum moisture content. To distribute the water, the contractor had one shop-built 6,000-gallon tank pulled by a Cat DW10 tractor, and four 3,000-gallon tanks mounted on Ford F8 trucks. Compaction of the fills to 100 per cent modified Proctor was handled by Bros double-drum sheepsfoot rollers.

Base course

A 10-inch foundation course, topped by a 6-inch flexible base, was placed atop the grade. The 10-inch founda-

(*Continued on next page*)

Truck-mounted A-W Hydraulic Crane Equipped with ½-yd. concrete bucket shown working on job for Western Gravel Co.

A-W Hydraulic Crane shows versatility at Western Gravel Co. plant

Western Gravel Company, Campbell, Calif., produces rock, sand and gravel and also sells Redi-mix concrete, made in two fully automatic batch plants. More than a year ago, this company bought an Austin-Western Hydraulic Crane unit for work in its own yard and to rent to customers. Mounted on a 6-wheel Army truck which has a platform large enough to transport a ½-yd. concrete bucket or a ⅜-yd. clamshell bucket, the crane has an 18-ft. extensible boom with a 17-ft. manual extension. Four hydraulic outriggers are used to give extra stability on heavy lifts.

Saves downtime of batch plant. Western Gravel reports: "Downtime of one of our batch plants not only costs the loss of the plant's production, but we lose the value of perhaps 10 of our Redi-mix trucks, worth $8 an hour apiece. Not only this, but our contractor-customers may suffer because gangs on the jobs are idle and there are also equipment rental losses. These losses may easily snowball into $300 an hour. Using the A-W, we can now change heavy motors on the plant in 30 minutes, an hour less than formerly. The value of this one hour saved might equal a month's cost of owning the A-W."

Popular with customers. "On most jobs, when a contractor rents a large crane he has to pay the moving cost and setup time for many more hours than he pays for renting our lower-rate A-W, which goes and comes so much faster and is ready to work minutes after it arrives."

Extremely versatile. "We used the crane to assemble our second batch plant. It lifts engines out of earth-moving machines and tractors... hoists sacks of admixtures up 20 ft. to floor of batch plant.... In our operation there seems to be nothing it cannot do to save time and labor in lifting things."

For the complete Western Gravel Co. story, write for Gould Certified Report No. 5601.

Austin-Western CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

For more facts, use Request Card at page 18 and circle No. 252

(*Continued from preceding page*)

tion course consisted of minus 2-inch crushed limestone with a maximum plastic index of 15. The 6-inch flexible base contained the same gradation of stone, but the lower plastic index of 10. On top of the flexible base will be placed a 3-inch binder course of asphaltic concrete and a 2-inch wearing course.

A fleet of 15 GMC trailer dumps hauled in the 101,000 cubic yards of foundation course and 78,700 cubic yards of flexible base. The material was spread in 2 to 6-inch lifts by a No. 12 blade and compacted with rubber-tire and steel-drum rollers. Among the modern types of compacting equipment used were two Browning self-propelled pneumatic rollers and one Vibro-Plus vibrating roller. Also on the job was a Seaman-Gunnison Duo-Pactor, which combined the advantages of a steel-wheel roller and a pneumatic roller.

Personnel

Both Killian and House spent a considerable amount of time on the job supervising the contracts held by their company. On the contract described in this article, Glen Quick was the superintendent, and Paul Giesler was the engineer.

The expressway engineer for the Texas Highway Department in the San Antonio area is R. O. Lytton. His assistant is W. C. Raby. Supervising and inspecting the construction on this contract was M. M. Peters.

THE END

A clothespin-type drop hammer drives L. B. Foster sheet piling along one side of the excavation site for the Capitol House Hotel addition in Baton Rouge, La. This will prevent the collapse of street pavements while basement walls are being constructed.

Sheet piling prevents pavements collapsing at excavation site

Maintaining a steady pace on a site that has been more wet than dry, Farnsworth & Chambers Co., Inc., New Orleans, La., has just about completed foundation work on a 10-story addition to the Capitol House Hotel in Baton Rouge, La.

Before basement walls could be constructed, the contractor drove about 160 pieces of steel-sheet piling along the west side and part of the south side of the 221×196-foot area. This was to prevent street pavement collapse as the walls were being built.

A clothespin-type drop hammer, attached to a Koehring 304 crane, was used to drive the 22-foot-long sheeting through alluvial silt and soft clay to 12 feet below basement floor subgrade. All of the MP-115 sheeting, rented from the L. B. Foster Co., was driven in eight days at an average rate of 5 linear feet per hour. It rained five of the eight days, and driving crews had to slosh through mud and water most of the time that they were working.

Slated for completion in September, the project will cost $2.5 million. The hotel is owned by Better Hotels of Louisiana, Inc.

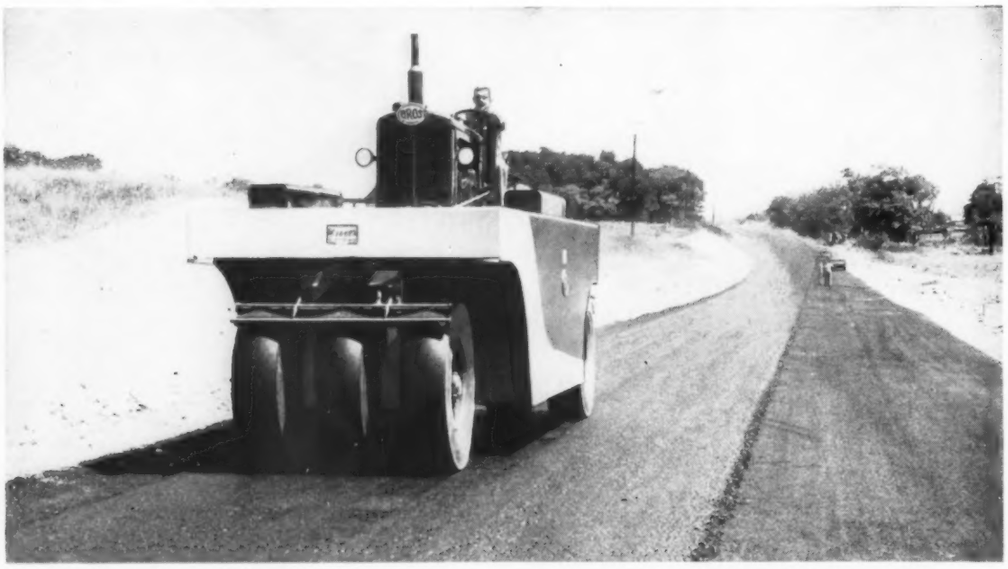
Film shows backhoe on different jobs

A 16-mm sound and color motion picture shows the Hyster D4 hydraulic backhoe on construction and maintenance jobs. Its design features, such as the separate vane-type pumps that power the swing-and-hoist actions, the rack-and-gear-type swing mechanism, its 240-degree swing arc, and the equalizer beam-and-strut mounting arrangement are described in detail.

Free showings of the film may be arranged by writing to Hyster Co., 2902 N. E. Clackamas St., Portland 8, Oreg., or 1800 N. Adams St., Peoria, Ill.

N. Y. firm changes name

The corporation name of Design Service Co. of New York, Inc., has been changed to Design Service Co., Inc., to better reflect its national and international scope of operations.



Front wheels of BROS SP-730 roller oscillate as a unit, rear wheels oscillate in pairs to accomplish *uniform consolidation by kneading*. For greater compactive forces are exerted than would be expected under normal traffic. Finished mat has enough *immediate* stability to withstand effects of modern traffic and yet has maintained enough voids to provide flexibility.

New BROS SP-730 (30-TON) PNEUMATIC ROLLER—

Achieves Maximum Consolidation of Flexible Pavements

● In a search for better compaction of asphaltic mats, the State of Ohio adopted specifications in 1956 for a *self-propelled rubber-tired roller* capable of wheel loads and contact pressures above the maximum produced by legally loaded trucks.

One such roller which met the new specifications was tested in 1957 to determine if it would consolidate a newly laid asphaltic concrete mat to the extent that the finished pavement would be stable under modern heavy traffic and still have enough flexibility to respond to any subsequent subpavement movement.

It was a BROS Model SP-730 (Self-Propelled, 7 Rubber-Tired Wheels, 30 Tons Maximum Weight) with three wheels forward and four wheels in the rear. Construction of the mat in no way varied from standard methods except that the BROS rubber-tired roller was used in place of the steel tandem roller usually operated behind the initial roller.

The BROS roller was used on a project in Licking County to construct a three inch asphaltic concrete binder course over a base of five inches of waterbound macadam on an eight inch granular subbase.

IN-PLACE DENSITY TESTS ON THE COMPLETED MAT, CONDUCTED BY THE OHIO STATE HIGHWAY DEPARTMENT, SHOWED AN AVERAGE VOID CONTENT OF 4.01% AND AN AVERAGE DENSITY OF 100.99%! VARIATIONS IN DENSITY AND IN VOID WERE, FOR ALL PRACTICAL PURPOSES, ELIMINATED. (SEE TABLE.) AND, WHAT'S MORE, DESIGN DENSITY WAS ACCOMPLISHED BY ONLY ONE PASS OF THE ROLLER!

Results of this test *and* of a second test on a similar project in Clermont County (which showed an average void content of 3.71% and an average density of 101.28%) are now available on request.

Can your state afford *not* to get asphalt mat compaction results similar to those described? Send for the complete report today. You'll be on your way with *initial* compaction that's final . . . to greater, longer-lasting pavement stability *than has ever before been possible!*

SP-730 RESULTS ON THE COMPACTION OF ASPHALTIC CONCRETE LICKING COUNTY, OHIO

Percent Voids	Percent of Design Density	Position in Cross Section (From C)
4.40	100.60	10 ft. lt.
4.90	100.10	4 ft. lt.
5.08	99.92	on c
2.73	102.27	4 ft. rt.
2.34	102.66	10 ft. rt.
4.69	100.31	10 ft. lt.
3.02	101.98	4 ft. lt.
3.93	101.07	on c
4.40	100.60	4 ft. rt.
4.11	100.89	10 ft. rt.
2.13	102.87	10 ft. lt.
4.58	100.42	4 ft. lt.
6.18	98.82	on c
4.14	100.86	4 ft. rt.
3.54	101.46	10 ft. rt.
4.01	100.99	◆ AVERAGE

BROS **BROS *Incorporated***

ROAD MACHINERY DIVISION

1057 TENTH AVE. S.E.
MINNEAPOLIS 14, MINN.

Write today for the full report on the Ohio tests and for complete new literature describing the new BROS SP-730 pneumatic roller. It's free of cost or obligation!

SHEEPSFOOT TAMPERS

STEAM GENERATOR

BITUMINOUS CIRCULATOR

VIBRA-PACTOR

9-TON SELF-PROPELLED ROLLER

9 AND 13-TON ROLLERS

For more facts, use Request Card at page 18 and circle No. 253

Convention calendar

March 11–15 Civil Engineering Conference
Conference, Student Service Center, University of Florida, Gainesville, Fla. Dr. F. W. Gilcrias, research professor, CEC, Department of Civil Engineering, University of Florida, Gainesville, Fla.

March 12–13 Kentucky Highway Conference
Meeting, Memorial Hall, University of Kentucky, Lexington, Ky. D. K. Blythe, head of civil engineering department, KHC, University of Kentucky, Lexington, Ky.

March 12–15 American Concrete Pipe Association
Fiftieth Annual Convention, Roosevelt Hotel, New Orleans, La. Howard F. Peckworth, managing director, ACPA, 228 N. La Salle St., Chicago 1, Ill.

March 17–21 National Association of Corrosion Engineers
Fourteenth Annual Conference and Exhibition, Civic Auditorium, San Francisco, Calif. A. B. Campbell, executive secretary, NACE, 1051 M & M Bldg., Houston 2, Texas.

March 23–29 American Congress on Surveying and Mapping and American Society of Photogrammetry
Eighteenth Annual Meeting of the ACSM and Twenty-fourth Annual Meeting of ASP, Conventions and Co-exhibits, Shoreham Hotel, Washington, D.C. ACSM meeting is held March 23–26; ASP held March 26–29. ACSM, Box 470, Washington 4, D. C.; ASP, 1515 Massachusetts Ave. N. W., Washington 5, D. C.

March 26–28 New York State Association of Highway Engineers
Nineteenth Annual Convention, Manger Hotel, Rochester, N. Y. Russell F. Lewis, general chairman, NYSAHE, 527 Arnett Blvd., Rochester 19, N. Y.

March 31–April 2 South Dakota Highway Short Course
Meeting, Union Building, South Dakota State College, Brookings, S. Dak. Emory E. Johnson, professor of civil engineering, SDHSC, Civil Engineering Department, South Dakota State College, Brookings, S. Dak.

April 2–4 Ohio Highway Engineering Conference
Conference, Ohio Union, Ohio State University, Columbus, Ohio. Emmett H. Karrer, general chairman, OHEC, Brown Hall, Ohio State University, Columbus 10, Ohio.

April 6–12 Concrete Reinforcing Steel Institute
Meeting, The Boca Raton Hotel, Boca Raton, Fla. H. C. Delzell, managing director, CRSI, 38 S. Dearborn St., Chicago 3, Ill.

April 7–8 Wire Reinforcement Institute
Meeting, The Boca Raton Hotel, Boca Raton, Fla. Frank B. Brown, managing director, WRI, 1049 National Press Bldg., Washington 4, D. C.

April 7–10 Purdue Road School
Meeting, Union Building, Purdue University, West Lafayette, Ind. Ben H. Petty, professor of highway engineering, PRS, School of Civil Engineering, Purdue University, Lafayette, Ind.

April 11–12 Texas Aggregates Association and Texas Ready Mixed Concrete Association
Fourth Joint Annual Convention, Gunter Hotel, San Antonio, Texas. Ray L. Cain, executive secretary, TAA-TRMCA, 201 Perry Brooks Bldg., Austin 1, Texas.

April 14–16 American Wood Preservers' Association
Meeting, Hotel Statler, Los Angeles, Calif. W. A. Penrose, secretary-treasurer, AWPA, 839 17th St., Washington 6, D. C.

April 14–17 Design Engineering Conference
Conference, International Amphitheater, Chicago, Ill., sponsored by the American Society of Mechanical Engineers. ASME, 29 W. 39th St., New York 18, N. Y.

April 14–18 Greater N.Y. Safety Council
Twenty-eighth Annual Safety Convention and Exposition, Statler Hotel, New York, N. Y. Paul F. Strickler, executive vice president, GNYSC, 60 E. 42nd St., New York 17, N. Y.

April 15–16 Earth Moving Industry Conference
Conference, sponsored by Central Illinois Section, Society of Automotive Engineers, Hotel Pere Marquette and Madison Theatre, Peoria, Ill. M. B. Holland, EMIC, Engineering Department, Caterpillar Tractor Co., Peoria, Ill.

April 15–17 American Welding Society
Welding Show, Kiel Auditorium, and Technical Meetings, Hotel Statler, St. Louis, Mo. Robert T. Kenworthy Associates, AWS, 12 E. 41st St., New York 17, N. Y.

April 17–18 American Institute of Steel Construction
National Engineering Conference, Chase-Park Plaza Hotel, St. Louis, Mo. L. Abbett Post, executive vice president, AISC, 101 Park Ave., New York, N. Y.

April 21–23 Building Research Institute
Seventh Annual Meeting, Shoreham Hotel, Washington, D. C. BRI, National Academy of Sciences–National Research Council, 2101 Constitution Ave., Washington 25, D. C.

April 27–May 2 National Association of Architectural Metal Manufacturers
Twentieth Annual Convention, Shamrock Hilton Hotel, Houston, Texas. William N. Wilson, executive secretary, 228 N. La Salle St., Chicago 1, Ill.

May 2 Conference for Engineers
Annual Conference, Mershon Auditorium and Ohio Union, Ohio State University, Columbus, Ohio. Harold A. Bolz, associate dean, CE, College of Engineering, Ohio State University, Columbus 10, Ohio.

May 6–8 Hwy. Transportation Congress
Meeting, Hotel Mayflower, Washington, D. C. Arthur C. Butler, director, HTC, 966 Nat. Press Bldg., Washington 4, D. C.

LIMA

NEW

LIMA TYPE 84-T TRUCK CRANE

has high capacity, low weight

LIMA's new 4-axle truck crane, Type 84-T, of 70-ton capacity, sets a new standard in the industry. High-strength T-1 steel is used throughout in the truck chassis and components for greater strength with less weight.

The truck chassis consists of two full box section members, joined by seven cross members. Special features include easily removable pin-on-type front and rear outrigger boxes; roller mounted outrigger beams; full length combination deck-fender design; large, full vision operator's cab; frame-width engine compartment; hydraulic steering on all four front wheels. Working weight of the Type 84-T is 121,000 lbs. Minimum stripped weight for highway travel, 85,660 lbs.

The compact rotating unit is designed for heavy-duty service. All motions are air-controlled. Deck gears and reversing bevel gears are enclosed and pump-lubricated. Other LIMA Type 84-T features are: oversize brakes and clutches, liberal use of anti-friction bearings on all main shafts and cable drums, large two-shoe type swing clutches, dual boom hoist drums, power-raised and lowered high telescopic type gantry which reduces travel height to 13'-8", one-piece rear counterweight easily removed to meet highway limitations and torque converter power take-off.

For further information, see your nearby LIMA distributor; or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

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For more facts, use Request Card at page 18 and circle No. 254

In the spillway area of the Fort Gaines Dam on the Chattahoochee River in Georgia, crews of Layne-Atlantic Co., Norfolk, Va., work on the downstream header line that will carry water pumped out of the excavation.

Specialist takes over for big dewatering job

When one phase of a project calls for a special skill, the wise contractor calls in a firm that can best do the job.

That is what happened when work started on the Fort Gaines Lock and Dam project, the U. S. Army Corps of Engineers' job on the Chattahoochee River near Fort Gaines, Ga.

A large and permanent dewatering system had to be installed before work could start on the concrete-gated spillway. The holder of the $6,505,700 contract for this work, Hardaway Contracting Co., Columbus, Ga., first completed work on the cofferdam. Then it made way for Layne-Atlantic Co., Norfolk, Va., to install the dewatering system. Layne-Atlantic, one of the largest organizations of its kind in the country, has a good backlog of experience in handling jobs like the one required here.

This firm installed a system of twenty wells, ten of them on 100-foot centers on the upstream side. Five are on 200-foot centers on the downstream side, four are on 60-foot centers on the west or river side, and one is in the center on the east side, encircling the excavation for the spillway. The lines of wells are located 23 feet outside the limits of the concrete for the structure.

Drilling wells

Three Bucyrus-Erie cable rigs drilled the 20-inch-diameter wells through strata of earthy limestone and shell-limestone until the hard, calcareous sandstone was reached. The bore holes required to form the wells had an average depth of 65 feet. The existing ground elevation was about plus 130 feet, and the normal water table elevation was plus 120 feet. The top of the shell-limestone stratum—the water-bearing stratum—was at plus 78 feet; its base was at elevation plus 35 feet, where hard sandstone was found.

Wells were drilled along the upstream side of the spillway to elevation plus 35 feet to draw the existing ground water table down below elevation plus 60 feet—the bottom elevation of the spillway section. During drilling operations on a hole, a 20-inch-diameter, 30-foot-long protective casing was positioned at the top of the bore hole to prevent any caving as drills went through the earthy limestone stratum.

Once the bore was drilled, a slotted casing, about 50 feet long, was dropped through the protective pit casing and positioned at the bottom of the hole. This casing had about eight 12-inch-long vertical slots around its circumference for its entire length of 50 feet, permitting water to pass from the shell-limestone stratum into the well. A blank 18-inch-diameter casing was then placed atop the slotted casing to extend the well above existing ground level. It took from 8 to 12 hours to drill a 20-inch-diameter bore hole to a depth of 80 feet.

The 20-inch-diameter pit casing, together with the 18-inch blank cas-

These TD-24 full-time pi

let you run power circles ar

Exclusive, all-weather, seconds-fast International gasoline conversion starting. Direct combustion heat conditions the TD-24's engine, seconds-fast—for full diesel performance. You avoid the warm-up delays and service complications of a surplus starting engine—earn money while "slow starters" are warming up!

Exclusive International Cerametallic-faced engine clutch action. The TD-24 is the only king-sized crawler with this big feature. Immune to heat and cold, this long-lasting clutch gives full-load power-transfer efficiency—anywhere, anytime! This dry-type clutch of simplified design eliminates "high frequency" servicing demanded by clutches with "cooling systems."

Exclusive, years-proved Planet Power steering. Why put up with load limiting "dead track drag" on the turns in a king-sized steering clutch crawler? Why not profit from TD-24 Planet Power steering that enables you to pull or push as big a load on the turns as on the straight-away? See how TD-24 two-track turning power never backs off from a load. "Take the turn" to new profits with Planet Power steering!

Exclusive cycle-speeding on-the-go shifting. In either Torque-Converter or Gear-Drive model, the TD-24 gives instant stall-preventing Hi-Lo shifting, without stopping or even declutching. Fingertip matching of speed to load under full power gets the job done sooner!

Exclusive TD-24 fingertip operating ease provides the operator comfort incentives and the means to give full days of full capacity cycle-speeding production!

Find out how these and all the other TD-24 production exclusives can equip you to run power circles around anything else on tracks. See your International Construction Equipment Distributor for a TD-24 demonstration!

Planet Power steering and Hi-Lo "power-crowd" keeps the TD-24 loading the "75" Payscraper® at top effective speed—adds up to increased daily yardage. Only 30 to 45 seconds needed to heap-load a "75" Payscraper—on this Dominic Leone Construction Co., Inc., Colorado road job!

System of 20 wells allows contractor to go ahead with work on excavation and spillway for Fort Gaines Lock and Dam job

A Chevrolet truck equipped with a derrick is used by Layne-Atlantic to help in the job of installing fittings to connect the well pumps to the discharge header line.

ing extending above the ground surface, was encased in concrete that acts as a pedestal to support the well pump. A Layne vertical turbine pump, which is capable of pumping 1,500 gpm at 1,750 rpm at a 105-foot head, is being used at each well. Each pump is powered by a 75-hp Continental TD-427 diesel engine. The operating speed of the diesels can be varied to increase or decrease pumping capacity. An oil drip atop the pumps keeps them automatically lubricated.

The pumps discharge water into welded 20 to 26-inch header lines that feed to 30-inch-diameter discharge lines running through the upstream and downstream cofferdam dikes. Each of the 30-inch discharge lines is equipped with a meter that records the amount of water pumped. This record is necessary in determining the Corps of Engineers' payment to the contractor. Under the contract agreement, Hardaway receives 5½ cents per 1,000 gallons removed. This schedule is being used because it is impossible to determine the amount of water that will have to be removed during spillway construction.

Layne-Atlantic also sank 6-inch-diameter observation wells around and along the center of the spillway excavation area to check the extent of the draw-down.

Excavation

A total of 10,000 cubic yards of earth and 175,000 cubic yards of rock has to be removed for the 708-foot-long concrete spillway. Hardaway is handling the job with two Lima cranes—one 1201 and a 1¾-yard machine—and a fleet of Euclid bottom-dumps. Drilling is done by a 4-inch auger drill, and blasted rock is removed by the Lima 1201 with a Hendrix 3½-yard dragline bucket.

About 90,000 cubic yards of spillway excavation was used to build the two earth embankments along the upstream and downstream ends of the cofferdam. Excessive seepage was prevented by using impervious material found at the site for one-third of the width of the embankment.

Cofferdam construction

Under a separate $375,000 contract, Hardaway built the 1,100 linear feet of three-sided cofferdam. About 227,000 linear feet of U. S. Steel NP 101 interlocking sheet piles was used to form the cofferdam cells. The cofferdam consists of six double cells along the river, four single cells upstream, and seven single cells downstream. The single cells were used to tie into the earth embankments of the cofferdam.

The single cells, having a 63.6-foot diameter, were driven on 67½-foot centers by a McKiernan-Terry 9-B-3 steam hammer handled by a Lima 1201 crane. This crane used a 120-foot-long boom in driving the piling; steam was supplied by a Littleford Kwik-Steam generator.

Each of the six double cells, having an outside and inside radius of 26

...e production exclusives ...es around "cycle-stallers"

...ps the ...ven with such offset loads as a boulder-bucking angled ...—adds ...ade—benching a road round a hill—TD-24 Planet Power steering ...ded to ...s you concentrate the power where you want it. You stay on ...ruction ...urse—production stays up!

On slam-bang rock-dozing or moving other heavy materials, instant TD-24 Hi-Lo shifting adjusts tractor power to load resistance—increases production, avoids delay! And you get fast reversing to speed shuttle-dozing!

INTERNATIONAL® CONSTRUCTION EQUIPMENT

International Harvester Co., 180 N. Michigan Avenue, Chicago 1, Illinois

A COMPLETE POWER PACKAGE: Crawler and Wheel Tractors ... Self-Propelled Scrapers ... Crawler and Rubber-Tired Loaders ... Off-Highway Haulers ... Diesel and Carbureted Engines ... Motor Trucks ... Farm Tractors and Equipment.

←For more facts, circle No. 255

(*Continued from preceding page*)

Spillway excavation is being handled by a Lima 1201 with a Hendrix 3½-yard bucket. The material being loaded into the Euclid bottom-dump is used to build up the berm carrying rails for the upstream gantry.

feet, and with centers of rotation 26 feet apart, is 78 feet wide. Each double cell, divided by a sheet-pile diaphragm, is linked to adjacent double cells by sheet-pile connectors.

About 160 sheet piles were required for each single cell, and 19 piles in each of two connectors. There were 205 piles needed for each double cell, and 15 piles in each of two connectors. The lengths needed to get a minimum 1½-foot penetration into rock ranged from 60 to 73 feet.

A contractor-built steel template was used to shape the cofferdam cells. After piling was driven to complete a cell, a 15-foot lift of sand was loaded into the cell by a clamshell bucket. The landward cells on both arms of the cofferdam were completely filled by the clam bucket. After a 15-foot fill was placed, the template was removed and repositioned for a cell on the other arm of the cofferdam. A removable bridge was constructed between a partly filled cell and a completed cell so that a fleet of 5-yard dump trucks could deliver backfill directly to a chute at the partly filled cell. Most of the backfill material was initially obtained from the spillway excavation, but as work continued, a borrow pit 1,500 feet from the cofferdam was used.

Working in this way, the contractor was able to fill one cell while another cell was being installed. To prevent deformation of the cells Hardaway filled the connecting diaphragms between cells after the cells themselves had been filled.

A total of 132,700 cubic yards of sand was required to fill the cells. Berms were also built up along the inside of the single-cell cofferdam walls for added support. Berms were not required behind the double-cell walls, which have sufficient width to withstand the overturning forces.

Spillway construction

When completed in January, 1959, the 708-foot-long spillway will have 15 piers straddling 14 tainter-type gates. The spillway crest elevation will be plus 163 feet, and the tops of the piers will be at plus 208 feet. During construction of the spillway, four 42-foot-wide sluiceways will be formed by bringing sections of the spillway to an elevation of only plus 103 feet.

The four sluiceways will be required for the temporary diversion of the river during construction of the powerhouse and lock. River diversion through the sluiceways, rather than over the completed spillway crests, is necessary to keep the height and extent of the second-stage cofferdam within working limits. It is also necessary because the existing surrounding land is at elevation plus 150 feet and flooding would result if the river was diverted over the crests.

Most of the interlocking sheet piling in the spillway cofferdam will be re-used to block the river flow during powerhouse construction. The powerhouse, which will have four 13,200-kw generators, will extend across the river and tie into the abutment on the Alabama side by means of a 5,000-foot-long dike. The dike was completed in 1956 under another contract. On the Georgia side of the spillway will be the lock with an 88-foot-lift capacity. A second 5,000-foot-long earth dike will be built to tie the lock in with the surrounding land.

Spillway apron

The 5-foot-thick reinforced-concrete slab making up the 90-foot-wide spillway apron will be tied down to the foundation rock by means of anchor rods. These No. 18 bars will be about 54 feet long and will be firmly embedded in the underlying strata to prevent any possible flotation.

Two-fisted for tough going!

Your Diesel engines run better, last longer when you change to Sinclair Super TENOL® Motor Oil.

Sinclair Super TENOL safeguards your equipment against the damaging effects of high temperature and continuous stop-and-go operation.

Sinclair Super TENOL withstands such punishing conditions because it's specially made for tough going. High viscosity index base oils, combined with an exclusive formula of selected additives, give your Diesel the greatest protection against varnish, sludge, rust and acid corrosion.

Refill now with Sinclair Super TENOL Motor Oil. Contact your local Sinclair Representative for further information, or write Sinclair Refining Company, Technical Service Division, 600 Fifth Avenue, New York 20, N.Y. *There's no obligation.*

Dino, the Sinclair Dinosaur, says:

SINCLAIR SUPER TENOL®

For more facts, use Request Card at page 18 and circle No. 256

A Lima crane places a precast-concrete deadman behind a sheet-pile wall being driven to support a fill. The fill will be used by a gantry placing spillway concrete.

Washers 5 inches in diameter will be welded along the bottom 6 feet and the top 2½ feet of each anchor rod to help fasten the rod to the rock and apron slab. Six-inch-diameter holes will be drilled, on an upstream 1 to 10 slope, the bottom of which will be under-reamed to a 20-inch diameter with an expansion bit. Grout will then be pumped into the hole and the reamed lower section. When the bar and welded washers are lowered into the hole, the grout will be displaced to fill the hole. The bottom 6-foot washer section of the anchor rod will then be firmly embedded in the rock. The protruding 2½-foot washer section of the rod will be encased in the 5-foot apron slab to tie the slab to the foundation rock.

A total of 819 anchor rods, spaced on 9×9-foot centers, will be necessary to anchor the apron before the dewatering pumps are removed.

Personnel

William R. Coryell is the resident engineer, for the Mobile District, U. S. Army Corps of Engineers, which is supervising construction on the $88 million project. F. L. Estop is the geologist for the Corps and is supervising the foundation operations. J. F. Meagher is the superintendent for Hardaway Contracting, and Jack Carlson is the resident engineer for Layne-Atlantic. THE END

Job-site safety program outlined in NCA booklet

A 16-page booklet outlining the requirements for setting up and enforcing a job-site safety program is now available, without charge, from the National Constructors Association, 50 E. 41st St., New York, N. Y.

The booklet tells how to organize a safety committee, how to indoctrinate new employees, what medical arrangements to make, how accidents should be reported and investigated, what fire precautions should be taken, and suggests a schedule for safety inspections. Suggestions are given for the use of films, posters, and other visual aids to promote safety.

Electronic computer used in U. C. L. A. courses

The electronic computer is going to school. The University of California in Los Angeles, now using a Bendix G-15 to help prepare engineers for executive positions, has special courses in the use of the computer. These have been set up for a two-year engineering executive program, which is now being taken by about 60 engineers.

The computer is also being used in undergraduate classes. Problems large enough to warrant the use of a computer are being regularly assigned as an integral part of course instruction.

The computer in use at UCLA is a general-purpose, medium-size unit, with computing capacities and speed comparable to the largest machines in use a few years ago.

Moles awards presented

Francis Donaldson and Peter F. Connolly were given the Moles awards for outstanding achievement in heavy construction, at the annual awards dinner of The Moles in New York City.

Donaldson, a vice president and director of the Mason & Hanger Co., has been associated with many large tunnel undertakings around Manhattan; he designed the foundation for the New Jersey towers of the George Washington Bridge. Connolly, president of the Osterville, Mass., company that bears his name, has also been responsible for many important tunnel and foundation jobs in the New York City area.

Thomas J. Walsh, board chairman of the Walsh Construction Co., New York, made the presentation to Donaldson; and Edward G. Johnson, of Arthur A. Johnson Corp., New York, presented the award to Connolly.

4-in-1 outloads "single-action" rigs... gives 4-machine utility, to boot!

Using Skid-Shovel action—the operator takes time-saving advantage of fast exclusive pry-over shoe break-out action and 42° ground-level roll-back to heap the bucket. Then he uses exclusive non-spill parallelogram lift action to "keep the heap all the way up." This 1½ cu. yd. International Drott 4-In-1 loads up to 120 cu. yd. of bank run gravel per hour—for excavating contractor, Roy M. Wright, Springfield, Mass.! "Can't be matched by any other rig," operator declares!

Cashing-in on earth-rolling bulldozer action, as well as all three other big-capacity actions, Gradyville Services, Inc., Gradyville, Pa., clears, excavates, and grades a 4-acre tract for a trailer park—beats a fleet of old style, limited-duty rigs. "The tractor has plenty of power to handle all 4-In-1 actions," states Operator George Johnson!

Employing carry-type scraper action with inch-close accuracy, this TD-14 4-In-1 provides speedy, labor-saving sub-grading action. Note how the clam lip is regulated to let the earth "boil" in! In addition, this 4-In-1 removed old concrete, and bulldozed—on this Rea Construction Company job, near Rockville, Md.

Putting space-saving clamshell action to work on clean-up, this TD-14 4-In-1 shows how you can practically eliminate costly "hand-shovel-wheelbarrow" methods—get increased job-getting earning power from your loaders. The clamshell fills itself in one fast gulp; gives positive, self-cleanout bottom dumping. Owner: C. W. Atkinson & Sons, Columbus, Ohio.

Move the "machine-selector" lever—compare 4-In-1 versatility and capacity to any "single-action," dip-and-dump loader. See how 4-In-1 multiplies your profit range by four. See your International Drott Distributor for a 4-In-1 demonstration.

International Harvester Company, Chicago 1, Illinois
Drott Manufacturing Corp., Milwaukee 15, Wisconsin

INTERNATIONAL® DROTT®

For more facts, use Request Card at page 18 and circle No. 257

Modern design of library roof saves job costs for contractor

Six hyperbolic paraboloids form roof of Hunter College library; radical building concept saves on cost of labor and materials

There's a real "quick change artist" geting many jobs done fast on Chicago's Calumet Skyway project. This versatile performer is a Manitowoc Model 3500 60-ton crane operated by Arcole-Midwest Corporation of Skokie, Ill. — Arnold Kincaid, Supt. of Equipment. Equipped with a 50′ boom, the crane sets 8-ton longitudinal and 54-ton support girders for the elevated structure. A quick change to an 80′ boom with a 15′ jib or a 140′ boom, and the rig is ready for high lift concrete pouring with a 2-yd. bucket.

"The Manitowoc 3500 has demonstrated its versatility in multiple use over the long haul," says Arcole-Midwest operator Frank Dauksch. "Its combined advantages of quick interchangeability of lines and booms, plus completely dependable operation make it the ideal single unit for a job with many aspects such as ours. Boom changes of 50′ to 140′ can be made without touching the removable counterweight — there's no downtime resulting from laboriously hauling and adding counterbalance weights. With proper steel schedules, we could easily set up 500 tons per day — enough to complete this job in a week's time."

Boom length changes are simple. Both flanges and pendant lines fit together quickly without tediously re-reeving cable every time. Using only three men, Arcole-Midwest can add another boom segment in just two hours, with a 30% labor cost saving over previous machines used.

For precise steel setting and load spotting, the crane has both manual control — where "feel" of the load is essential — and air control to eliminate operator fatigue. Disc-type clutches assure smooth performance without grabbing and dangerous load swing.

"The mobility of the Model 3500 from job to job is higher than any other machine I have worked with," says Dauksch. "The rig can remove its own track assembly for flat car loading — the only crane to my knowledge that can do this. With our Manitowoc, we can load for shipment without bringing in another crane on the job, saving over $300 in rental cost. On the whole, this Manitowoc is the smoothest working machine made, with many practical refinements that make is *vastly superior* to any other crane we've used."

You can have profit-making versatility like this on *your* next job. Call your helpful Manitowoc distributor now for all the facts!

Manitowoc Engineering Corp., Manitowoc, Wis.

SHOVELS 1 — 5½ YD.

Manitowoc

CRANES 20 — 100 TON

For more facts, use Request Card at page 18 and circle No. 258

The hyperbolic-paraboloid shape, a radical construction concept developed and used in South America, has been filtering northward to be adapted to home and even to church construction. (See "Graceful Thin Shell Forms Church Roof", C&E, Jan. 1958, pg. 138.)

The newest building to make use of the shape in thin-shell concrete roof construction is the 120×180-foot college library on the Bronx campus of Hunter College in New York.

This building goes some of the others one better by having six instead of one of the shapes for the roof. Viewed from above, the roof will resemble a tufted cushion. From below, or inside the building, the shapes will look like six umbrellas blown inside out. Only six columns will be needed inside the building to support the roof—one column for each of the 60×60-foot shapes. The columns will have hollow cores opening to the roof for drainage purposes. The result will be an interior with long spans and plenty of floor space, allowing much flexibility in the use of the building.

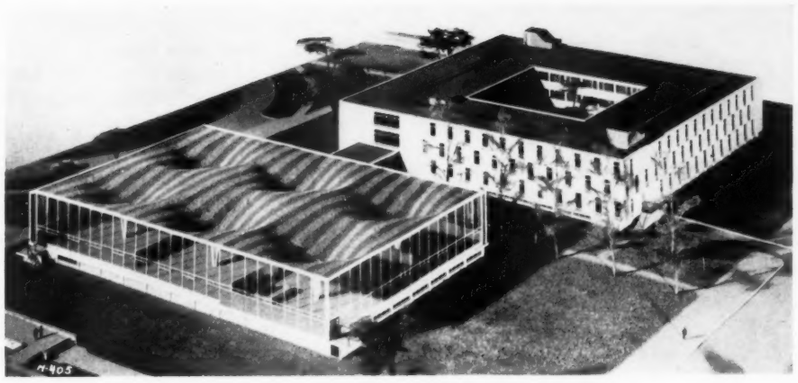
But construction work as well as functional features makes the building important. The hyperbolic-paraboloid shapes will require less concrete for a given area, making it possible for the roof to be built in a shorter time, and at less cost of labor and materials, than a conventional-type roof. And since the complicated shapes are actually formed with straight lines, straight lumber is being used to form the framework for the shell.

Insulation problem

The advantages of this type of construction outweigh the difficulties involved. The biggest problem on this job was the insulation of the roof. Rigid insulation materials cannot be used, since they lack flexibility. Because of this, architect Marcel Breuer specified that a concrete mixture made with perlite—an expanded volcanic mineral—be used for insulation.

The mix will consist of one bag of portland cement and 4 cubic feet of perlite concrete aggregate to 9 gallons of water and one pint of air-entraining agent. This mix will provide a compression strength of 440 psi and a thermal conductivity of 0.77.

There will be a saving in the cost of labor when it comes to applying the insulation, for the structural shell will not have to have a finished surface to receive the insulating concrete. The 3½-inch structural concrete will be rough screeded before



A model of the Hunter College library shows the hyperbolic-paraboloid shapes that will roof the glass-enclosed structure. A common entrance will link the building with the new classroom-administration building.

the 3-inch layer of perlite concrete is applied. This will be equal in insulation to 35 inches of ordinary structural concrete. The perlite insulating concrete will form a hard bonding surface that will readily receive mineral surface roll roofing. This will be placed in alternate stripes of light and dark gray.

When completed next year, the library will form a sharp contrast to a companion classroom-administration building also being built as part of the $3,300,000 project. It will be connected to the library by a common entranceway. Conventional load-bearing masonry construction was specified for this 30-classroom structure, which will have a secluded inner courtyard for faculty events. Both this flat-roofed structure and the library will have similar and unusual facades on the sunny sides. Honeycombed sun-control grills of 12×12-inch terra-cotta flue tiles will be set 4 feet in front of all-glass walls to provide effective shading and yet permit unobstructed views. The remaining two walls of each building, facing northeast and northwest, will not require sun protection.

Both buildings will harmonize with the four existing Gothic-style buildings on the campus. Clay-colored tiles and other exterior materials, including limestone, fieldstone, and black-mat bricks, will be used so that the colors of the new structures will blend with those of existing buildings. THE END

Truck Mixer Division for Hercules Galion

A new Truck Mixer Division, to produce and market truck-mounted concrete mixers and portable weight batchers and conveyors, has been established by Hercules Galion Products, Inc., Galion, Ohio.

The firm's product line, formerly known as the Hercules-Willard line of concrete-mixing machinery, was manufactured by Hercules Galion and sold nationally by the Willard sales organization.

R. A. Bohmer is sales manager for the new division.

Gulf Oil plans largest annual expenditure

Gulf Oil Corp., Pittsburgh, Pa., plans to spend $564 million for the expansion and improvement of production, refining, transportation, and marketing facilities of the corporation and its consolidated subsidiaries.

An additional $128 million is being spent for geophysical exploration and wildcat drilling, in the hope of enlarging the firm's oil reserves.

For more facts, use coupon or circle No. 259→

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ON US 27

The three-unit "65" Payhauler fleet of Greer Brothers and Young, highball 2,000 cu yd of rock 1,200 feet daily. Rock-moving climbed 'way ahead of schedule, on this U. S. 27 relocation job near Lincoln, Kentucky!

Both Payhauler sizes—the 18-ton "65", and 24-ton "95"—have built-in, schedule-beating performance!

Exclusive high reverse and "zip-around" power steering gives a Payhauler regular "pick-up truck" spotting ease. The "big-target" Payhauler body speeds the shovel's dip-and-dump cycle.

Load-matched and road-matched turbo-charged diesel power gives these heavy-duty, off-highway haulers super-fast get-aways. Next-to-automatic Payhauler control gives safe, capacity-adding speed—even over rough terrain! The "65" can roll at 36.4 mph; the "95" at 38 mph!

And the double-acting hydraulic hoist, *under full controlled power both up and down,* contributes cycle-speeding 10-to-12-second Payhauler dumping!...Extra speed on every job-phase adds up to extra profit-tons hauled!

See how a Payhauler on your job will give you a decisive, profit-margin difference! See your International Construction Equipment Distributor for a demonstration!

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Manufacturer memos

H. G. Meadows, president of W. R. Meadows, Inc., Elgin, Ill.

W. R. Meadows, Inc., news

H. G. Meadows has been appointed president of W. R. Meadows, Inc., Elgin, Ill., maker of asphaltic products. He succeeds his father, the late W. R. Meadows.

The new president has been associated in the business management of the firm since 1946, during which time he served as assistant secretary, production vice president, and executive vice president.

William C. Ridge, vice president of production for John A. Roebling's Sons Corp.

Roebling's Sons elects Ridge vice president

William C. Ridge has been elected vice president of production for John A. Roebling's Sons Corp., Trenton, N. J., a subsidiary of the Colorado Fuel & Iron Corp. During his 15 years with Roebling, Ridge was works manager for the firm, and before that, manufacturing manager of its Electrical Wire Division.

Ferguson Co. appoints

The H. K. Ferguson Co., Cleveland, Ohio, has appointed Ralph W. Olmstead executive vice president. Olmstead has served as assistant to the president and, since 1956, as a vice president and director of the firm.

James R. Fraser and William E. Hark have been named vice presidents of engineering and construction, respectively. Fraser was formerly the firm's chief engineer, and Hark was former general construction manager.

Koppers appoints manager

Howard P. Clifton, formerly supervisor of employment, Industrial Relations Department of Koppers Co., Inc., Pittsburgh, Pa., has been appointed office manager of the company's Engineering & Construction Division, to succeed H. G. Barton who has retired from the firm.

In his new post, Clifton is responsible for general supervision of all duties relating to office management and administrative services in the Pittsburgh offices.

A-C manager retires

Charles N. Karr has retired as sales promotion manager of the Tractor Group of Allis-Chalmers Mfg. Co., Milwaukee, Wis. At his former post, which he held for 12 years, he directed the advertising and sales promotional activities for the Construction Machinery, Engine-Material Handling and Farm Equipment Divisions.

C.I.T. Corp. changes

Thomas E. Lenihan, president of C. I. T. Corp., industrial financing firm, has been elected a director of C. I. T. Financial Corp., New York City, of which C. I. T. Corp. is a subsidiary. Donald E. Kidd, Douglas C. Brown and Roy S. Wallace have been elected vice presidents of C. I. T. Corp. New assistant vice presidents are Charles J. Crump, Jr., A. I. Parker, George W. Durphy, and John R. Luce, all in the home office. Two other assistant vice presidents are Lee G. McGraw of the Los Angeles Division and Thomas L. Geiss of the Chicago office. James A. Fitzgerald, Walter M. Schilling, and Anthony G. Cunningham have been appointed field representatives. F. L. Conrad is the new sales manager for the Portland, Oreg., division.

Black & Decker promotes

The Black & Decker Mfg. Co., manufacturer of electric tools, Towson, Maryland, has elected J. Early Hardesty vice president and treasurer, and George W. McCarty vice president of research and development.

Prior to their promotions, Hardesty was treasurer, and McCarty was the firm's chief engineer.

Minneapolis-Moline names

Minneapolis-Moline Co., Minneapolis, Minn., has promoted M. E. Carroll, formerly director of field sales, to general sales manager. At his new post he is responsible for sales operations—industrial, export, and farm; he will also be in charge of the departments of market research, advertising, technical publications, customer services, parts, and the service organization.

New B. F. Goodrich Hi-Torque Brak

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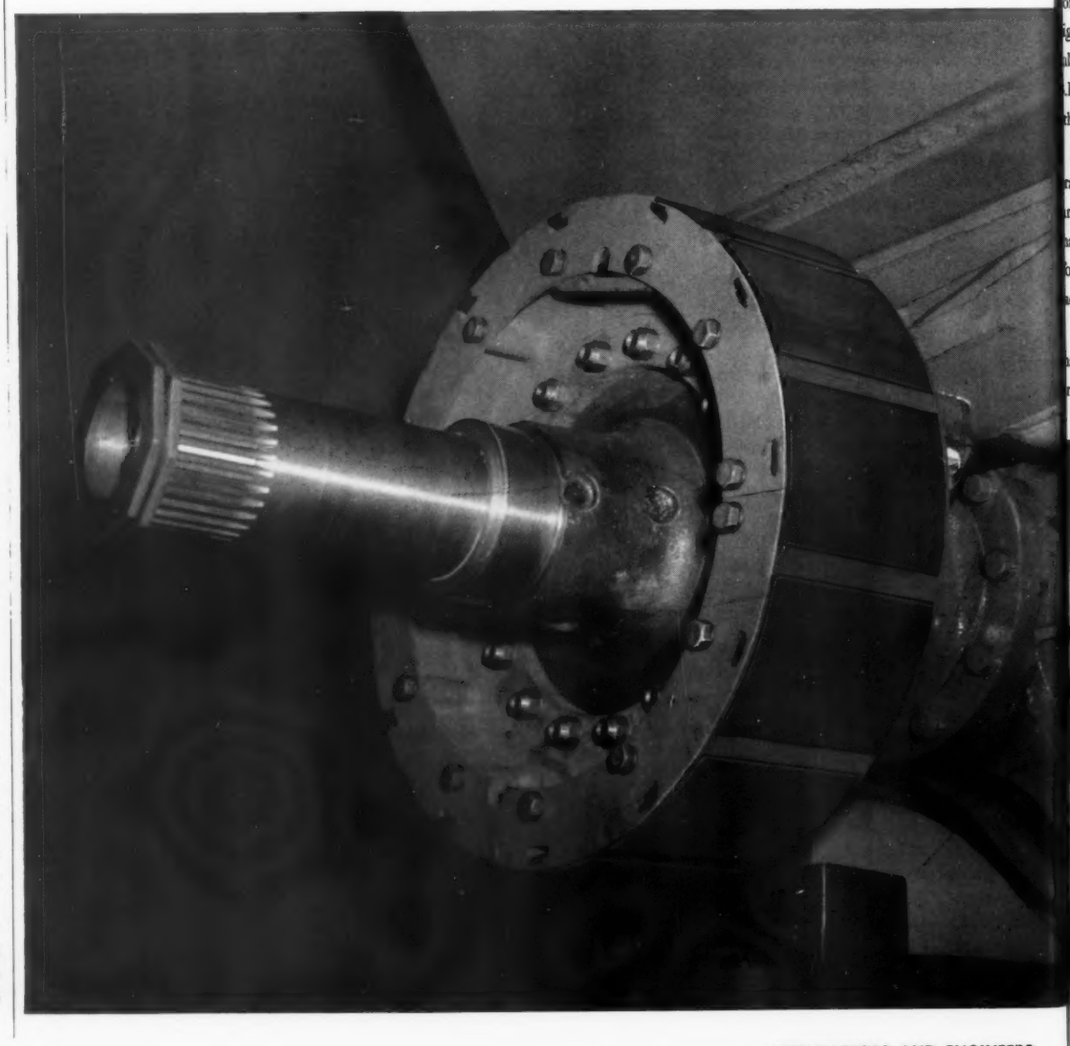


Marion names Wettergreen

John A. Wettergreen has been appointed manufacturing vice president and general works manager of Marion Power Shovel Co., a division of Universal Marion Corp. at Marion, Ohio.

Formerly vice president in charge of manufacturing, Wettergreen succeeds Martin R. Tuttle, who has resigned.

The firm has also appointed Mike Geller as assistant sales manager, and Bob Falck as western regional sales manager.

Geller assists in the administration of the Marion sales, service, and parts departments; and Falck, headquartered at 326 Shaw Rd., South San Francisco, Calif., represents the firm in the states of California, Nevada, Utah, Arizona, and parts of New Mexico and Idaho.

Nordberg promotes Luebke

Robert E. Luebke has been appointed sales engineer for the Mining, Crusher & Process Machinery Division of Nordberg Mfg. Co., Milwaukee, Wis. His new duties include special machinery design, cement plant machinery application, and direct sales in the division's cement industry machinery branch.

RB&W elects Hamilton

The Russell, Burdsall & Ward Bolt and Nut Co., Port Chester, N. Y., producer of industrial fasteners, has elected Charles S. Hamilton, Jr., vice president and treasurer of the firm.

Hamilton, a director of the company since 1954, replaces John B. Gates.

Structural Plastics elects Orr president

William R. Orr, civil and chemical engineer, has been elected president of Structural Plastics, Inc., Fort Worth, Texas, a newly organized firm that produces building materials from fiberglass and plastics.

Also head of the Construction Service Co., Orr has been conducting experimental tests with fiberglass and plastics, working with several major manufacturers of the raw materials for the past three years.

Russell S. Stewart, sales manager of Viber Co., Burbank, Calif.

Viber appoints manager

Russell S. Stewart has been appointed sales manager of Viber Co., Burbank, Calif., manufacturer of concrete vibrators. Replacing him at his former post as assistant manager is O. L. Whitman.

Stewart, who has had many years' experience in the light construction equipment field, was formerly associated with C. H. Jones Equipment Co., Salt Lake City.

United Steel Fabricators makes personnel changes

United Steel Fabricators, Inc., Wooster, Ohio, has promoted Ernest S. Infield, former sales manager of the Highway Products Division, to vice president in charge of sales. Charles C. Hall, vice president, heads the new Division of Special Services, and John Ebdy, Jr., fills the newly established post of budget sales manager. Gerald A. Weimer, chief industrial engineer, is chairman of the executive committee.

Earl Boughton is field sales manager and Milton Long, operating sales manager, of the Metal Door & Frame Division; Charles W. Burleson is field and operating sales manager of the Metal Building Division; and Paul E. Glasgow is field sales manager and James Slater, operating sales manager, of the Highway Products Division.

General Tire promotes

The General Tire & Rubber Co., Akron, Ohio, has promoted Edward O. Breunig to truck tire sales manager of the Los Angeles division. In his new post, Breunig, formerly Santa Monica territory salesman, will share responsibilities with Art E. Harris for directing truck tire sales in Southern California and parts of Arizona and Nevada.

William C. Kurtz has been appointed manager of truck tire sales for the Detroit sales division.

Atlas personnel changes

Wilbur H. Kordt has been appointed director of the central engineering department of the Atlas Powder Co., Wilmington, Del. He succeeds J. Charles Allen, former chief engineer, now consultant to D. J. Carroll Copps, senior vice president.

Frank Irwin, formerly head of the construction unit, heads the newly consolidated design and construction services section. Frank C. Gromann remains as manager of the technical services section, former industrial services section.

B.F.Goodrich

OFF-ROAD BRAKE STOPPING POWER

For years B.F.Goodrich wheels and brakes have been landing big commercial and military aircraft. Now, adapting successful engineering design to the heavy duty equipment field, B.F.Goodrich has developed an off-road brake that outperforms other brakes in every case.

It's the B.F.Goodrich Hi-Torque Brake, the *only* off-road brake with reserve capacity to handle the needs of larger and larger equipment. Unlike conventional anchored-shoe brakes that are actuated at only two points, the B.F.Goodrich Hi-Torque Brake actuates with uniform hydraulic pressure under each of *12* shoes.

On-job tests prove that the B.F.Goodrich Hi-Torque stops mammoth equipment up to two and a half times faster than ordinary two-shoe brakes. Operators can reduce cycle time by maintaining higher speeds with safety. In addition, automatic adjustment is provided throughout the life of the linings. Full circle actuation allows shoes to follow drum eccentricities. This equalizes lining pressure—makes braking action smoother—reduces fade. And torque is equal in forward or reverse.

If you build or use trucks, tractors, scrapers or any wheeled off-road vehicles, you'll want to know more about this revolutionary new B.F.Goodrich Hi-Torque brake. It installs quickly, easily—requires only a single hydraulic connection. No lubrication necessary.

Free descriptive folder—The B.F.Goodrich Hi-Torque Brake—gives actual on-job test results and specifications of typical sizes up to 26" x 7" with torque capacities exceeding 120,000 pound-feet. Write: B.F.Goodrich Aviation Products, a division of The B.F.Goodrich Company, Troy, Ohio.

The B.F.Goodrich Hi-Torque Brake is now standard equipment on the M-R-S 250 Scraper (left) and 550 horsepower M-R-S 250 Tractor, the world's largest rubber tired scraper combination with a capacity of 34 cu. yds. struck and 43.5 cu. yds. heaped. Designed for use with straight hydraulic or air-over-hydraulic systems, the B.F.Goodrich Hi-Torque Brake is already available on other off-road equipment.

B.F.Goodrich Hi-Torque brakes

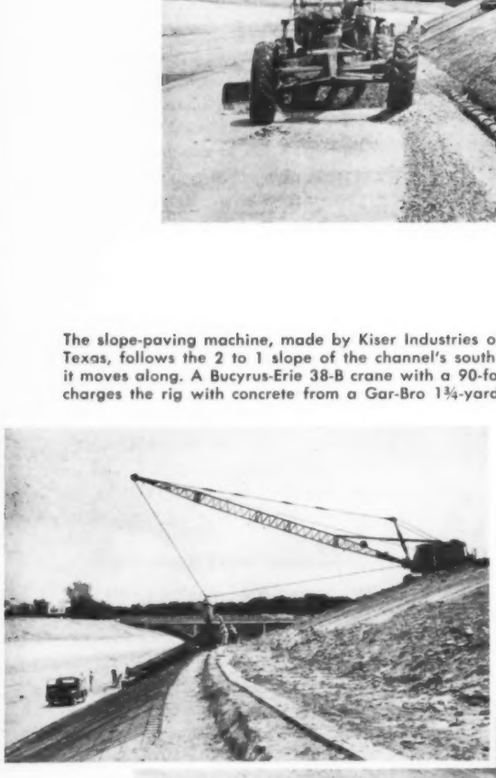
For more facts, use Request Card at page 18 and circle No. 260

While a Cat No. 12 motor grader blades gravel over a concrete drainage pipe, the 6-inch sand filter blanket is laid on the 2 to 1 slope. Sand is dragged up from the bottom by a modified I-beam screed handled by a Koehring 605 crane. The ends of the screed rest on 6-inch pipe set to grade. The crane bucketing concrete to the paver is just beyond the bend.

Special paver lays concrete on channel slope of 2 to 1

Slip-form-type paver makes up to 500 feet daily during work on 24-foot-wide 6-inch-thick lining for floodway channel

by **BILL ALLEN**
field editor



The slope-paving machine, made by Kiser Industries of Dallas, Texas, follows the 2 to 1 slope of the channel's south wall as it moves along. A Bucyrus-Erie 38-B crane with a 90-foot boom charges the rig with concrete from a Gar-Bro 1¾-yard bucket.

The operator, riding the paver at the top, controls the vibrators in the hoppers, the forward motion, and the height of the paver. Height is controlled by matching a pointer to a grade string at the top of the bank. Concrete is contained by a 7-foot-long slip form at the top and by the channel slab at the bottom. Shovelmen are needed here because the filter blanket is too high.

Finishing and concrete-curing crews follow the paver, working from platform bridges that are pushed along by hand. Men on the first working bridge hand-float the slab, give it a brush finish, and form dummy contraction joints. The second platform is used to apply curing compound.

A paving machine that places concrete on 2 to 1 slopes simplified and speeded the lining of a floodway channel in Houston, Texas. Built specially for the job, this fast slip-form-type paver laid as much as 500 feet of 6-inch concrete to 24-foot widths in a day.

The lining of this section of the floodway channel is part of an over-all plan to improve some 26 miles of Brays Bayou. The channel begins at Chimney Rock Road, southwest of downtown Houston, and flows easterly to its outlet in the Houston Ship Channel. Improvement of Brays Bayou is part of a $62 million comprehensive flood-control plan for Harris County that is being developed jointly by the Harris County Flood Control Authority and the Galveston District of the U. S. Army Corps of Engineers.

One of the jobs involved in this floodway project was the grading and lining of a 2-mile stretch, running from Stella Link Road to Main St., which Trinity Construction Co., Inc., of Houston handled under a $1,748,000 contract.

For this length of the floodway, the slopes of the channel were sodded on upper sections and lined with 6 inches of reinforced concrete on lower sections. The average over-all width of the top of the channel cut is 210 feet, and its average depth from top of sodded slopes to the bottom of the pilot channel is 31 feet. The concrete section of the channel consists of a 60-foot-wide bottom with a 2-foot-deep pilot channel at its center. The concrete sides of the channel rise up from the bottom slab on a 2 to 1 slope to meet a 10-foot-wide berm. From the berm, 2½ to 1 sodded slopes rise to the top of the bank.

Slope-paving machine

One of the more interesting phases of the construction was the paving of the 2 to 1 slopes. Trinity had a special

paving machine built for the job by Kiser Industries of Dallas, Texas. This slip-form-type paver rode on rubber wheels that straddled the approximately 24-foot-wide slope. The lower set of wheels rode on the concrete of the previously poured channel bottom. The upper set of wheels rode on a row of planks set just outside the top of the slope.

Between the wheels was a long troughlike hopper that received the concrete. The hopper was divided into separate bins so that the concrete could be evenly distributed for the length of the paver. Mounted on each hopper was an air-powered vibrator to consolidate the concrete. The concrete passed through the bins and into place, where it was leveled by a metal-plate screed as the paver moved ahead. The metal-plate screed was wider at the base of the slope than it was at the top. This permitted greater consolidation of the lower half of the concrete, which was under more pressure. The sides of the slab were contained at the top by a 7-foot-long slip form and at the bottom by the existing slab.

Only two men worked on the machine. One man dumped the concrete bucket to keep the individual bins from ⅓ to ½ full. The operator, by means of air controls, regulated the forward movement, the grade and, when necessary, the vibrators. The forward movement was controlled by two air-powered motors that drove the top and bottom sets of wheels. Hydraulic jacks controlled the height of both upper and lower ends of the paver.

The operator adjusted the grade of the upper end of the paver by matching it to an indicator on a grade string. It was seldom necessary to adjust the lower end of the paver, for the lower wheels rested on the bottom slab. All power to the paver was furnished through an air hose leading from a Gardner-Denver 315-cfm air compressor stationed on the top of the bank.

Paving operation

The paving machine was kept supplied with concrete by a Bucyrus-Erie 38-B crane, which swung a Gar-Bro 1¾-yard bucket from ready-mix trucks to the bins of the paver. After the concrete went through the paver, it was hand-floated and given a brush finish. The fresh concrete was then hand-sprayed with curing compound. Dummy contraction joints were set with a steel template every 50 feet, and asphalt-treated Celotex expansion joints with smooth steel dowels were set in front of the paver at 150-foot intervals.

The concrete crew consisted of two men on the paver, four finishers, one spray man, one joint setter, and five laborers. On a good day, the crew paved 500 feet of slope with a 6-inch-thick, 24-foot-wide slab. Production averaged about 400 feet per ten-hour day.

The water content of the mix was

(Continued on next page)

A Gradall, cleaning the slope at the edge of the bottom slab, is serviced by a Ford F700 lube rig. The rig carries a 500-gallon diesel storage tank and has five grease reels and an air reel. Inlets in the concrete lining are for existing drainage lines.

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4000 lbs. to 8000 lbs. . . . BINDER TO TOP? *FLIP ONE SWITCH!*

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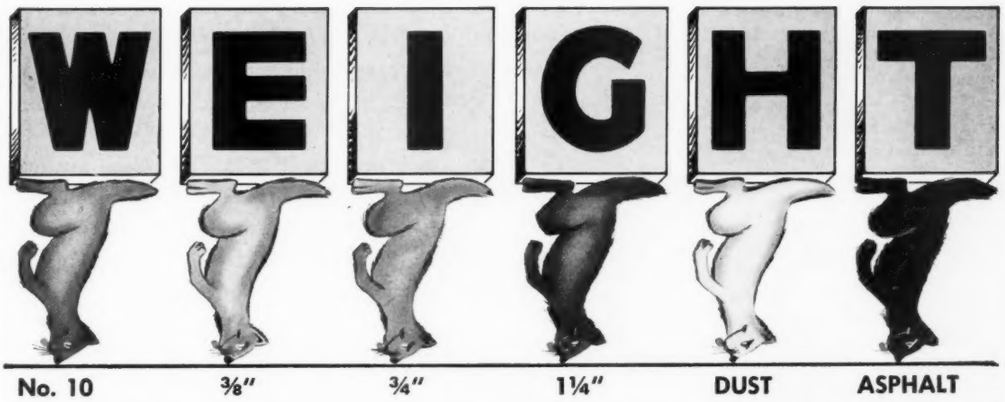

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RIGHT ON THE NOSE!

Simplicity *Automatic* Equipment is available *ONLY* on Simplicity asphalt plants, new or old.

THE SIMPLICITY SYSTEM CO., Chattanooga, Tenn.

For more facts, use Request Card at page 18 and circle No. 261

The normal drainage flow is pumped over a cofferdam by a pump with a capacity of 104 cfs, driven from a power takeoff at the rear of the Allis-Chalmers HD-20 tractor. The Gardner-Denver pump, foreground, aids in time of heavy flows.

the critical factor in obtaining good results with the paver. It was found that 5.4 gallons of water per sack yielded the best results. This kept the slump at between 1½ and 2 inches. To the 5¼-sack mix was added 5½ per cent of air-entraining agent. The ready-mix concrete was supplied in the contractor's transit-mix trucks by South End Building Materials Co., Houston.

High water is constant menace

A floodway channel is not the best place to be working in a season of heavy rains, and Texas had one of its wettest seasons in many years during this job. The contractor had to pull his equipment out of the ditch at least five times to avoid waters that rose as high as 15 feet.

Because of the constant menace of high water, the contractor kept the fine-grading and the laying of the filter blanket no more than a thousand feet from the paving machine. By taking this precaution, he risked losing only a thousand feet or less of fine-grade work in the event of flooding.

Concrete rests on filter blanket

The contractor had an efficient method of placing the 6-inch sand filter blanket on the 2 to 1 slopes. To start the operation, trucks dumped sand onto the bottom slab near the toe of the slope. Then, two lengths of 6-inch steel pipe were set about 20 feet apart on the graded slope at right angles to the center line of the channel. The upper side of the pipe was set to the finished grade of the sand. The contractor used a Koehring 605 crane stationed on top of the bank to work the sand up the slope with a modified I-beam screed. The ends of the I-beam screed rested on the pipes which controlled the grade of the sand. After the sand filter for this section had been placed, the crane picked up the after pipe and placed it about 20 feet in advance of the forward pipe to start another section.

Reinforcing steel

The 1,576,000 pounds of reinforcing steel for the job was furnished by Peden Iron & Steel Co., Inc., Houston. The steel, cut and bent at the plant, was wired into 50-foot-long mats on the job. The reinforcing steel for the slopes was built into mats at intervals along the top of the bank. The mats were then picked up by a Koehring 605 crane which strung them along the top of the bank. The job of placing the mats on the filter blanket was handled by the Bucyrus-Erie 38-B, the same crane that bucketed concrete to the paving machine.

Lining poured in five sections

The concrete lining for the entire channel was poured in five separate sections. After a diversion channel had been built on the north slope to carry normal flows of the bayou, the pilot channel at the center of the floodway was poured. This 2-foot-deep channel with 2 to 1 sloping sides was also built with the Kiser paving machine. The next step was to build the north half of the channel bottom. This 6-inch slab is on a 30 to 1 slope and is 22 feet 10 inches wide. It was poured in the conventional way, a crane bucketing the concrete from transit-mix trucks to the forms.

At this stage, the diversion channel was eliminated as the flow of water was routed into the pilot channel. Then the north 2 to 1 slope was built with the Kiser paving machine. After this, the south half of the channel bottom was poured. Finally, the 2 to 1 slope on the south side of the channel was paved.

Big pumps keep project dry

Water was always a problem on this project. When the water flowing in the pilot channel reached the lower end of the job, it encountered an earth dam about three feet high. The

announcing the R-1550 ROADRANGER®

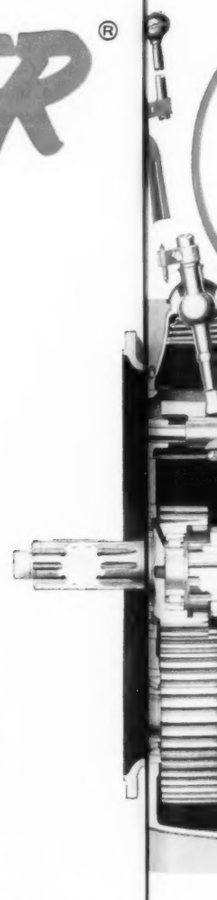
...for off-highway service with the *LARGEST automotive diesel engines built!*

This NEW ROADRANGER® is the *largest* heavy-duty *semi-automatic* transmission designed specifically for big earthmoving, mining and quarrying equipment where *maximum capacity* and *long wear life* are essential.

The model R-1550 offers 9 forward ratios and 2 reverse ratios all controlled with *one gear shift lever*. This transmission with overdrive in ninth has short, even steps between gear ratios which average 38%.

The model R-1550 is designed for diesel engines in the 1550 cu. in. class developing up to 600 hp.

Specify the brand new R-1550 Fuller Semi-Automatic ROADRANGER Transmission by name. Assure faster work cycles, lower fuel consumption, longer engine life, less operator fatigue . . . greater profits. Check with your equipment dealer for the most efficient, easiest shifting Fuller Transmission to meet your specific operating requirements.



NEW... AIR POWERED COUNTERSHAFT INERTIA BRAKE

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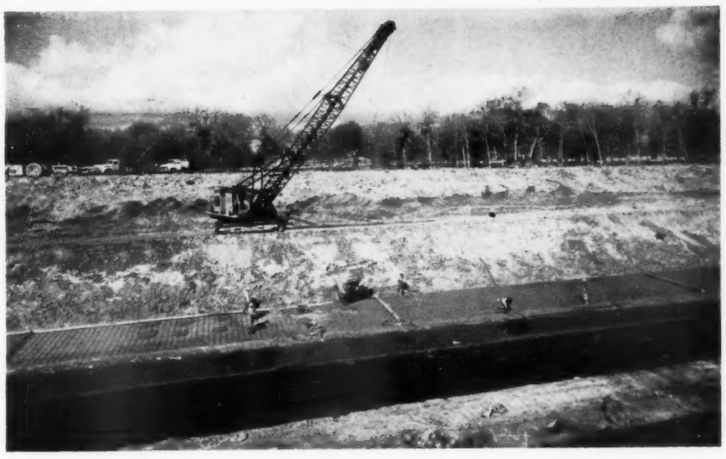
Fuller TRANSMISSIONS®

FULLER MANUFACTURING COMPANY • *Transmission Division, Kalamazoo, Mich.*

dam was the result of the floodway grade being about 3 feet lower than the grade of the bayou at this point. To prevent this natural dam from backing up water for about half the length of the project, it was necessary to pump the flow over a sheet piling cofferdam. To handle flows up to 100 cfm, the contractor installed a shop-built, axial-flow pump with a 30-inch intake pipe. The pump was driven by a power takeoff from an Allis-Chalmers HD-20 tractor. To supplement this pump in times of heavy flows, a Gardner-Denver 8-inch centrifugal pump with a 35,000-gpm capacity was installed.



The flow of water is diverted into the pilot channel at the center of the floodway while half the channel bottom is constructed. A Bucyrus-Erie 38-B crane uses a lay-down bucket to spot concrete for the 6-inch slab.

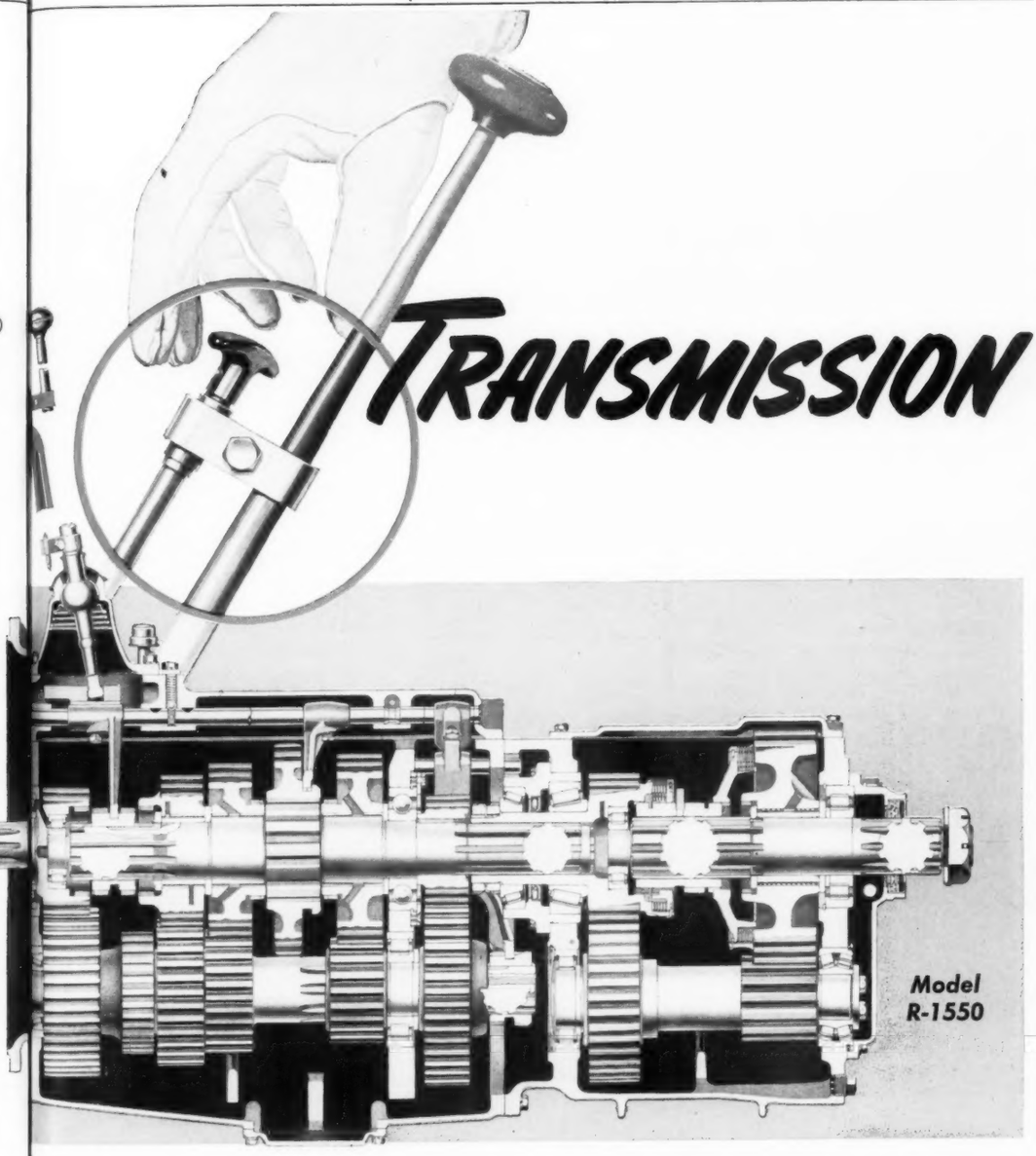
Drain pipes

A considerable variety of drainage pipe and structures was built in the construction of the floodway. A total of 27 drainage lines from 18 to 72 inches in diameter was tied in from existing lines to outlets in the side walls of the channel. Four ditches were lined with concrete and diverted into the floodway.

To drain the sand filter blanket of the channel, the contractor laid 6-inch concrete pipe in a ditch along the toe of the 2 to 1 slope. At clean-out boxes, located every 300 feet along the line, a stub line drained to the pilot channel. A Gradall with an off-set bucket excavated the ditch for this longitudinal drain, and a Caterpillar No. 12 motor grader bladed the backfill gravel into the trench.

Personnel

Trinity Construction Co. had Eugene H. Garrett as superintendent and Jack Cruse as concrete foreman. The entire project is under the supervision of the Galveston District of the Corps of Engineers. The district engineer is Col. W. P. McCrone. Chester L. Pawlik was the project engineer and Franklin L. Smith, the paving engineer. THE END



R-1550 Transmission

9 forward ratios

2 reverse ratios

1 gear shift lever

Short, even steps between gear ratios which average 38%

GEAR	RATIOS	% STEP	
Ninth	.69	44.93	High Range
Eighth	1.00	40.0	
Seventh	1.40	40.0	
Sixth	1.96	33.7	
Fifth	2.62		
RANGE SHIFT		34.7	
Fourth	3.53	39.94	Low Range
Third	4.94	39.88	
Second	6.91	38.35	
First	9.56		
Reverse	2.71	High Range	
Reverse	9.56	Low Range	

For more facts, use Request Card at page 18 and circle No. 262

Film describes versatile motor-grader attachment

A color-sound motion picture, which shows how finish grading can be done faster and more economically, has been released by Caterpillar Tractor Co., Peoria, Ill. Titled "The Preco Automatic Blade Control", the five-minute, 16-mm film describes and demonstrates the versatile attachment for No. 12 and No. 112 motor graders.

The picture may be obtained for showings by contacting Caterpillar dealers, or by writing to the company's advertising division at Peoria.

Pennsylvania plans widening of Route 51

The Pennsylvania Department of Highways has proposed a 6.37-mile federal-aid improvement plan for expanding and resurfacing Route 51 to provide four traffic lanes between Pittsburgh and Uniontown.

Work will begin 0.2 mile east of the intersection of High Road in Jefferson Borough, and extend northwest to the intersection of Pleasant Hills Boulevard in Pleasant Hills Borough.

A Bucyrus-Erie crane swings a prefabricated section into place on wood blocks set on the concrete floor of the building. Assembly was done from the center of the building to the edges.

Steel-truss roof is lifted into place for Air Force Academy unit

In one of the biggest roof-lifting operations ever attempted, the American Bridge Division of U. S. Steel raised a 1,150-ton steel-grid roof into place for the new cadet dining hall at the Air Force Academy in Colorado Springs.

American Bridge abandoned conventional methods and turned to the lifting technique because of the extreme accuracy required in the construction of the 308-foot-square roof. And its adaptation of the lift-slab method for erection of a steel-truss roof climaxed one of the season's more unusual building jobs.

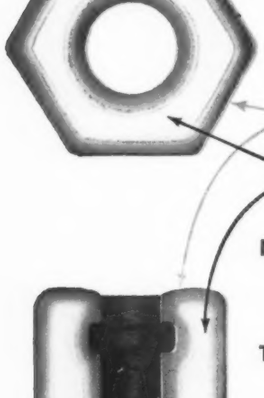
The entire roof consists of welded trusses that form a grid system of 484 squares, each with 14-foot sides. As the roof was being assembled and erected on the ground, sixteen columns were set in place to support the finished roof. Each column, about 20 feet from the outside edge of the building, is centered in a grid square. When the roof was raised 24 feet to the tops of the columns, it provided an unobstructed area of 266 feet square in the building, and a 20-foot overhang on each of the four sides. The lifting job was handled by 24 hydraulic jacks placed on top of the columns. One jack was used on each column near the corner; two jacks were used on other columns. These jacks pushed up on nuts which drew up lifting rods attached to a lifting frame supporting the roof truss. Throughout the 6-hour lifting operation, the movement of the roof and the force exerted by each of the 24 jacks was precisely controlled by remote consoles mounted on the steel-truss roof itself.

Lifting was stopped when the roof reached a point one inch higher than the columns. Then temporary 14×14-inch timbers, each with two jacks, were used to support the roof until it was permanently welded to the columns.

The final connection between columns and the roof truss was provided by two 2-inch-thick steel plates 2 feet high and positioned at right angles to each other, which formed a cross on the top plate of the columns. Similar heavy plates run from top to bottom in the center of the trusses that form the grid square around a column. Heavy angles, radiating up and out from the column to the slabs on the trusses, transmit the entire load to the roof columns. A stainless steel ball and socket atop each column permits the entire roof to float freely and allows for expansion and contraction resulting from temperature changes.

GARDNER-DENVER DRILL STEEL

Cuts drilling costs... reduces steel breakage



Made like tough rock drill parts

Gardner-Denver sectional drill steel is carburized to produce the same hard case, soft core structure that produces superior rock drill parts. Shot-peening increases fatigue resistance.

High-tensile surface strength resists abrasion, corrosion, nicking and down-the-hole gaff.

Tough, soft core provides compressive strength to withstand shock loads without breaking.

Made from quality steel

Gardner-Denver uses special alloy steels to insure uniform hardening and longer service life.

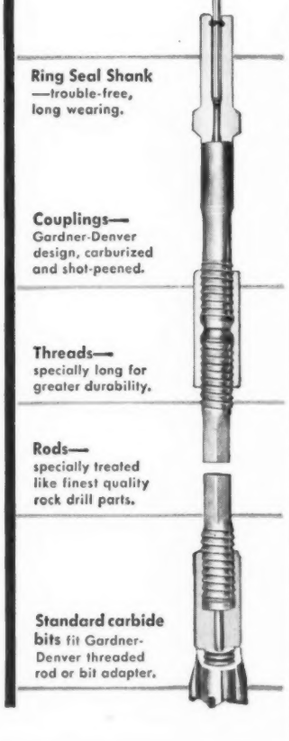
Threads and couplings designed for the job

The extra long threads and couplings of Gardner-Denver design provide greater strength and durability. Couplings are also carburized to provide a hard surface on the threads and a tough core.

Proved on the job

One user drilling hard rhyolite reports steel breakage reduced by 45% after changing over to Gardner-Denver drill steel.

Drill steel represents a large percentage of drilling costs. Gardner-Denver drill steel costs less to use. Write for information.


Ring Seal Shank —trouble-free, long wearing.
Couplings— Gardner-Denver design, carburized and shot-peened.
Threads— specially long for greater durability.
Rods— specially treated like finest quality rock drill parts.
Standard carbide bits fit Gardner-Denver threaded rod or bit adapter.

Gardner-Denver Sectional Drill Rod Specifications

	CL5-200 Series	CL5-400 Series	CL5-600 Series	CL5-700 Series	CL5-1000 Series
Thread Size	1 1/16"	1 1/4"	1 1/2"	1 3/4"	2 1/2"
Recommended Drill Size	3" and smaller	4" and smaller	4" and 4 1/2"	4" and 4 1/2"	5 1/2"
Recommended Bit Size	1 5/8" to 1 7/8"	2" to 2 1/4"	2 3/8" to 2 3/4"	3" to 4"	4", 4 1/2" and 5"
Rod Sizes	7/8" Hex.	1" Hex.	1 1/4" Hex.	1 1/4" and 1 1/2" Hex.	1 3/4" Hex.
Rod Lengths	2' to 20'	2' to 20'	2' to 20'	2' to 20'	4' to 20'
Coupling Diameter	1 7/16"	1 3/4"	2 1/8"	2 1/2"	3 3/8"
Ring Seal Shank	1" Hex. Collared 1 1/4" Rd. Lugged	1 1/4" Rd. Lugged 1 1/2" Rd. Lugged	1 1/4" Rd. Lugged 1 1/2" Rd. Lugged	1 1/2" Round	2 1/2" Round

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IN GENERAL INDUSTRY, CONSTRUCTION, PETROLEUM AND MINING

GARDNER-DENVER

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Export Division, 233 Broadway, New York 7, New York
In Canada: Gardner-Denver Company (Canada), Ltd., 14 Curity Ave., Toronto 16, Ontario
For more facts, use Request Card at page 18 and circle No. 263

The steel skeleton of the roof for the Air Force Academy dining hall at Colorado Springs stands virtually completed. The frame, consisting of 484 grids that are 14 feet square, was jacked into position atop the 16 columns that are set 20 feet from the edge of the structure.

Roof is assembled and welded at the site and jacked into position atop 16 columns

The big lift, completed in January, was the most dramatic part of the job. But the work of fabricating and welding the steel-truss roof, though less spectacular, was more than an ordinary operation.

Members are cambered

The 16,000 tons of trusses and columns were shop-fabricated in various lengths at both the Gary, Ind., and the Minneapolis, Minn., plants of American Bridge. During fabrication, each of the 8-foot-deep roof trusses was pre-cambered, coped, and beveled at the ends for field welding. This shop cambering was designed to provide a roof with the midpoint of each side 14¾ inches lower than the center of the roof. Corners of the roof were designed to be 6¾ inches higher than the midpoint of the sides, or 8¼ inches lower than the center.

The largest prefabricated trusses were 84 feet long and weighed about 10 tons each. The field crew received 44 of these big trusses, along with 56 sections that were 70 feet long. In addition, there were many smaller members, as short as 28 feet, supplied in multiples of 14 feet. Numerous 14-foot sections, which had to be tied between the larger trusses, were also supplied to field crews.

These trusses had T-section upper and lower chords, and diagonal and vertical angles. The chords were 18 inches wide and 1⅛ inches thick near the center, but were reduced to 7 inches in width and ½ inch in thickness at the outside edges.

Work from center to edges

Assembly and welding, done from the center to the sides of the roof, were under the supervision of Louis Hack, erection superintendent for American Bridge. Assembly started with trusses being set in place on large wood blocks that rested directly on the concrete floor of the building. As each truss was aligned, dimensions from the center of the structure were checked and an allowance of ⅛ inch made beyond the finished dimension for weld shrinkage. Then each truss was tack-welded.

By making continual checks during assembly, and by never fitting more than one length of truss beyond the one being welded, crew members maintained accurate dimension control during assembly. This step-by-step process made it easy for crews to compensate for any excessive distortion before assembly had gone

(*Continued on next page*)

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ALLIS-CHALMERS
☐ H-1 Orange

J. I. CASE
☐ H-6 Flambeau Red
☐ H-28 Desert Sunset

CATERPILLAR
☐ H-4 Yellow

JOHN DEERE
☐ H-3 Green
☐ H-10 Yellow
☐ H-11 Red

MASSEY-HARRIS
☐ H-18 Yellow
☐ H-19 Red
☐ H-23 Straw Yellow

OLIVER
☐ H-12 Green
☐ H-13 Red
☐ H-14 Orange
☐ H-22 Yellow

EUCLID
☐ H-9 Green
☐ H-27 Light Green

FORD
☐ H-20 Gray
☐ H-21 Red

MINNEAPOLIS-MOLINE
☐ H-16 New Prairie Gold
☐ H-17 Red

FERGUSON
☐ H-7 Gray

INTERNATIONAL
☐ H-2 Red
☐ H-8 Blue
☐ H-15 Green

For more facts, use coupon, or Request Card at page 18 and circle No. 264

(Continued from preceding page)

Flange butt welds are made with Lincoln iron-powder electrodes, which substantially reduced welding time and put the job ahead of schedule.

so far that they ran into difficulties.

Altogether, the 27 welders on the job used more than 11,500 pounds of welding rod to assemble the roof. More than 14,500 pounds of welding electrode was required in butt and fillet welds. Of this total, about 5,000 pounds was Lincoln's Fleetweld 5, E-6010 electrode. The remainder was Lincoln's Jetweld 2, a downhand iron-powder-type electrode.

The bulk of the welding was done at the butt joints in the flanges of the chords, where the trusses intersected the long, main members. Coped webs made it possible for welding to be done from the back side. Flanges of the butting chords were cut back so that the web section butted the web of another main chord. Fillet welds were used to join the webs.

Joints in the top chords were beveled from both sides. Welders first deposited overhead beads on the bottom side of a joint with 5/32 or 3/16-inch electrodes. After this was done, the welds were back-gouged from the top side with an arc torch. A few passes made with E-6010 electrodes in the bottom of the top side of the joint preceded the 5/32-inch and 3/16-inch E-6024 electrodes that were used to finish the joint. Run-out tabs were used.

The bottom chords were beveled from the top sides only, but had back-up plates tacked to the bottom. Operators deposited a few passes of E-6010 electrode in the root of each joint, then finished the joint with E-6024 electrodes. Use of the iron-powder electrode saved a considerable amount of time and helped the job get ahead of schedule.

Welding at intersections was completed by fillet welds on the webs. Most of these welds had ⅜-inch throats, though this reduced the lighter chords near the outside of the structure.

At present, the American Bridge crew is building a mezzanine floor for the dining hall. The supporting columns for the mezzanine will be slip-jointed to allow for contraction and expansion of the roof. All steelwork is expected to be completed early this year, allowing other crews to come in and finish the structure.

THE END

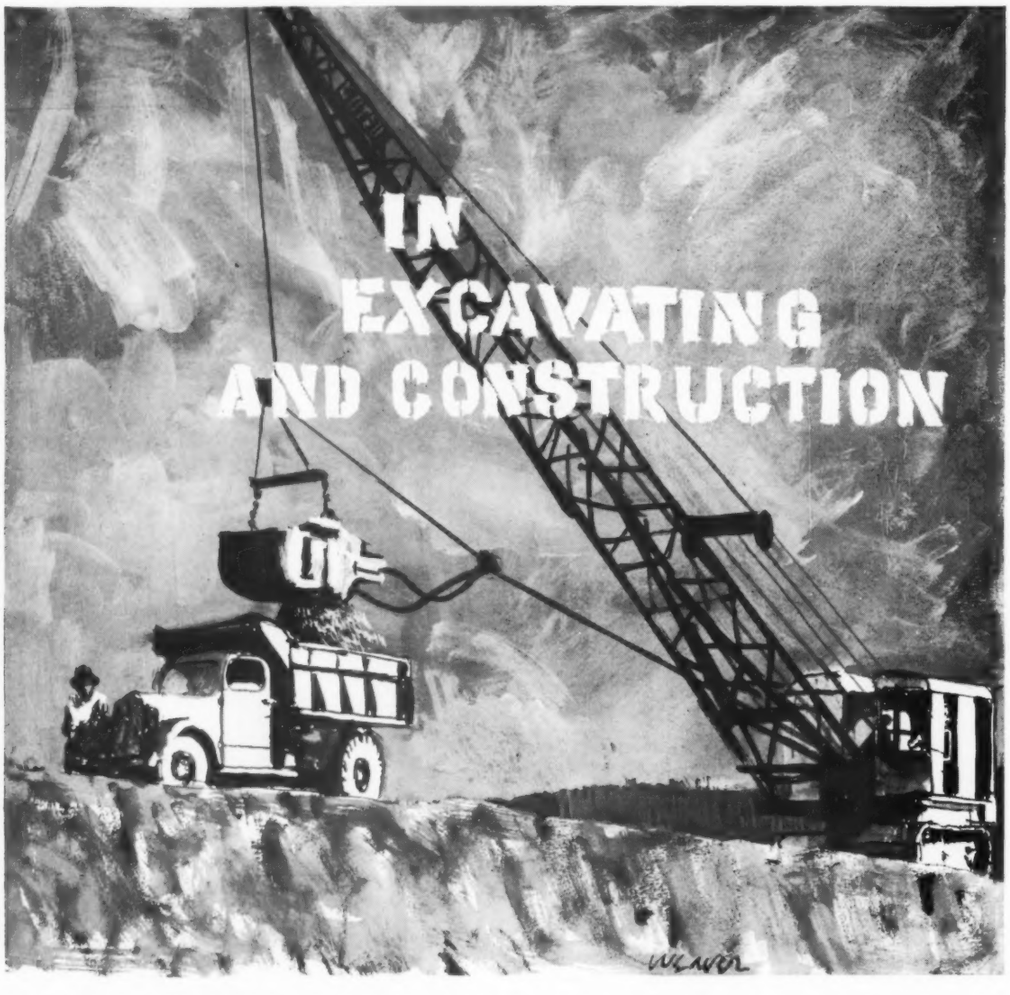
Highway sign program makes turnpike safer

A big, unified highway sign program is helping to make the 129-mile Connecticut Toll Road one of the safest turnpikes in the country. Federal Sign & Signal Corp., Chicago, Ill., which handled the marking job for the Connecticut State Highway Department, constructed and erected more than a million dollars' worth of all-aluminum highway signs, supporting structures, and road markers.

To guide motorists on the highway, its interchanges and cloverleaf intersections, 4,000 dark blue and green signs with intensively reflective letters were used, as well as 12,000 delineators—small silver and amber-colored prismatic "cat's eyes"—to mark all shoulders, curves and intersections. In addition, about 3,000 two-piece trailblazers—emblems with arrows—were placed on feeder roads to point the way to the Toll Road.

On about 440 of the signs, a new type of special reflective sheeting has been used on the background to increase visibility of the sign to motorists traveling at high speeds. Some 330 fluorescent signs, installed on 110 overhead steel spans and 87 cantilevers, help direct traffic at toll booths and special interchanges.

Approximately 200,000 pounds of aluminum for the signs, and 500,000 pounds of steel for the sign support structures, were used.



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Subsidiary of The Colorado Fuel and Iron Corporation

For more facts, use Request Card at page 18 and circle No. 265

Separate projects aid airport drainage

Crews assemble plates for the drainage line that will enclose the stream at the end of the runway. The bottom plates of the Multi-Plate pipe structure were fabricated next to the ditch and swung into place.

The last phase of a huge drainage construction job has been completed at Philadelphia's International Airport, making that facility one of the most modern in the country.

When the airport was expanded 11 years ago, a $7 million terminal building was constructed, and an instrument runway and new aprons and taxiways were built. All involved major drainage.

The most recent work, which removed the hazard of an open stream at the end of the runway and made it possible for an access road to be constructed to the main highway, called for 713 feet of 5-gage, 15-foot 4-inch span × 9-foot 3-inch rise Multi-Plate Pipe-Arch. This work was done under two contracts. John Meehan & Sons, Philadelphia, had the job of laying 590 feet of pipe enclosing the runway overrun, and Herbert J. Elkins, Inc., Philadelphia, contracted for the remaining 123 feet under the new access road.

Poor foundation conditions, the same as those found in earlier years, were provided for in the design.

Both contractors erected the bottom three plates near the ditch, then swung them into place. The entire structure was installed in an open ditch stream on a prepared foundation of crushed rock and sand, while water was bypassed through another ditch. The pipe was then field-coated with asphalt on two-thirds of the inside.

Four 13-degree elbows were fabricated into the pipe so that it could be constructed on a curve. Connections for existing lines in the area were facilitated as crews shop-welded 15, 18, and 36-inch pipe stubs into the Multi-Plate.

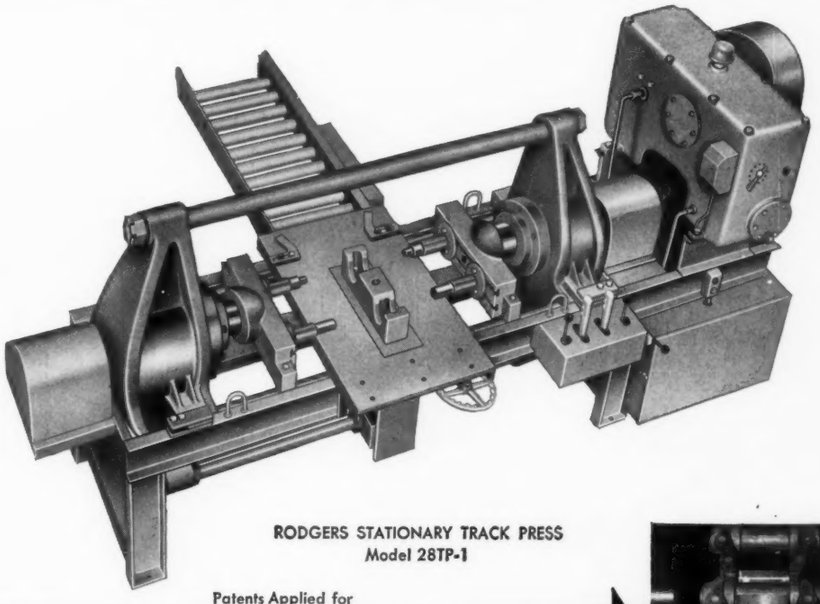
Earlier work

This work was a follow-up to difficult drainage jobs done between 1951 and 1953. In that time, a triple line of metal storm-sewer outfall was placed. About 9,800 feet of 78 and 84-inch-diameter Multi-Plate was placed. Large quantities of corrugated metal pipe were incorporated into the general drainage plan of the airport, including 9,400 feet of Armco perforated pipe for an extensive subdrainage system.

Under another phase of the job, pipe had to be installed some 7 feet below mean tide in the Delaware River, which is adjacent to the airport. Altogether, more than 17,000 feet of 12 to 72-inch corrugated metal pipe was laid. Though the pipe would have been able to function under these conditions, 12 inches of dry material was placed under it so that crews could work. THE END

Introducing the New 1958

RODGERS TRACK PRESS



RODGERS STATIONARY TRACK PRESS
Model 28TP-1

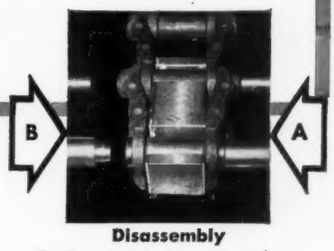
Patents Applied for

The Safest and Fastest operating press ever... To service all makes of crawler tracks

Disassemble a pair of links with grouser (2 bolts removed) in a matter of seconds—in one continuous operation.
Less handling of track components. No broaching of track links.
Assemble a pair of links with grouser (2 bolts removed) precisely spaced in one operation in a matter of seconds.
Precise spacing of links thru positive stops on rams—quickly adjustable.
Single pin and bushing can be removed at any point in the track without dismantling track to that point.

IMPORTANT FEATURES

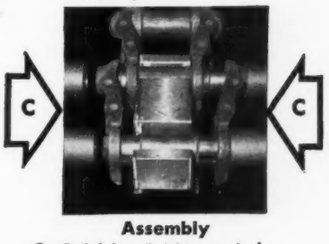
- Press capacity 150 tons. Press operation completely power controlled.
- Retractable jaws for faster positioning of the track for pressing operation.
- Power winch (5,000 lb. pull). Power drive for movement of track in either direction.
- Your choice of Stationary Models or Trailer Models equipped with air or water cooled gasoline engine.
- Trailer Models equipped with air compressor (72 CFM at 100 PSI) to operate impact air wrench and other air tools.
- Low cost tooling to service all makes and models of track.



Disassembly

A. Ram at right forces pin and bushing out of link.

B. Ram at left forces pin and bushing out of link for complete disassembly.



Assembly

C. Both left and right rams simultaneously force both links on pin and bushing to complete the assembly in a matter of a few seconds.

For complete information write for track press catalog 334.

HYDRAULICS Rodgers KEEP THE WORLD MOVING

Rodgers Hydraulic Inc

7415 Walker St. • Minneapolis 26, Minnesota

For more facts, use Request Card at page 18 and circle No. 266

This LeTourneau-Westinghouse sheepsfoot roller on the fill is pulled by a Cat DW10 tractor that carries a ballast box at the rear filled with earth for additional weight on the rear wheels.

Heavy rainfall and impervious gray clay make earthmoving difficult on the Richmond-Petersburg Turnpike in Virginia. The Euclid twin-engine scraper being helped to load is part of the spread handling 13,000 yards of material every 10-hour day.

Well maintained scrapers keep yardage high on pike grading

Borrow and runway excavation totals 13,000 yards per day; maintenance setup is kept mobile to stay close to equipment

A well coordinated and maintained equipment spread, though working under adverse conditions, moved more than 13,000 cubic yards of roadway excavation and borrow every 10-hour day on the new 35-mile Richmond-Petersburg Turnpike in Virginia.

Blythe Bros. Co., Inc., Charlotte, N. C., with contracts amounting to over $8 million for an 11-mile stretch of the pike, had a fleet of three Euclid TS-18's, five Euclid twin-engine scrapers, three Euclid S-18's, and a

Built by Kelley Machine Div., Wiesner-Rapp Co., Inc., Buffalo, N.Y.

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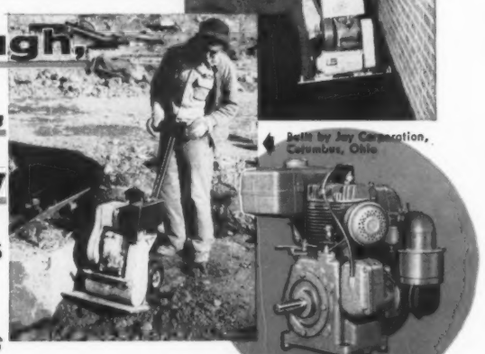
POWER

on rough, tough, dirty jobs



Built by Jay Corporation, Columbus, Ohio

when it's

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• Powering a tamper is one of the roughest, toughest jobs in the construction field for any engine. Tampers, such as these, strike surfaces with forces up to one ton . . . as many as 2400 times a minute. The engine must absorb vibration and shock. Rugged, built-for-punishment features and overall heavy-duty design are reasons why Wisconsin Engines power these tampers.

For example, tapered roller bearings at both ends of rugged steel forged crankshaft absorb all thrusts. And the air-cooling system of a Wisconsin Engine is designed for *all-weather workability*. One simple casting, a part of the flywheel itself, provides continuous, correct cooling *always* on all Wisconsin Engines.

It will pay you to specify Wisconsin Engines for tampers and all other equipment, too, 3 to 56 hp. Write for bulletin S-223 describing all models.

WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

MILWAUKEE 46, WISCONSIN

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The Model 424-56 is built in 1000, 1250 and 1500 gallon capacities as standard and can be furnished in other capacities, either truck or semi-trailer mounted.

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Built to the Highest **Standard**

Standard Steel Works, Inc. NORTH KANSAS CITY, MO. PD-157

For more facts, use Request Card at page 18 and circle No. 268

This Euclid S-18 is one of the scrapers rounding out a 12-unit scraper fleet that handles the biggest part of the 1,900,000 yards of roadway excavation and 600,000 yards of borrow.

A Del-Mag diesel hammer, developing about 18,000 foot-pounds of energy and working at a rate of 53 blows per minute, drives pre-stressed-concrete piles for one of the 16 bridges on the stretch.

LeTourneau-Westinghouse scraper to handle the bulk of the job. Altogether, this involved 1,900,000 cubic yards of roadway excavation and some 600,000 yards of borrow. A 2½-yard shovel and nine Ford dump trucks were used in only one of the six borrow pits; the rest were excavated by the rubber-tire scraper fleet. Tractor-drawn scrapers were generally used throughout the project on short hauls to place backfill material for culverts and drainage pipe.

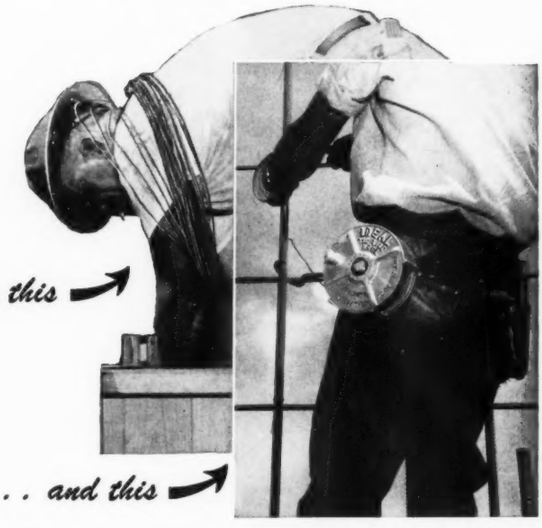
The roadway fill, hauled in by the Euclid fleet, was placed in 6-inch lifts and compacted not only by the rolling equipment but also by a large number of sheepsfoot rollers, including a Tampo, LaPlant-Choate, Ferguson, and a LeTourneau-Westinghouse.

The contractor converted a Caterpillar DW10 rubber-tire tractor to pull the LeTourneau-Westinghouse sheepsfoot roller. This increased the mobility of the compacting unit and allowed the rig to cover more ground than the other track-type prime movers. By removing the rear power takeoff units and the scraper, and replacing them with a ballast box and connector, the contractor was able to vary the earth fill in the ballast box and adjust the weight carried by the tractor. Additional compactive weight was added by filling the two large rubber tires of the tractor with water.

Push-loading the scraper fleet, which had average haul distances of a mile, was another fleet of tractors. This fleet, also used for the rough grading, contained three Allis-Chalmers HD-20's, seven Cat D8's and a D9, and a Euclid TC-12. Working with this spread were six Cat No. 12 motor graders, an Allis-Chalmers HD-11 front-end loader, a Caterpillar D6 and a D4, and an International TD-9 front-end loader equipped with a Wain-Roy backhoe for digging side

(Continued on next page)

Discover the profit difference



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Start Saving With IDEAL REEL On Your Job Now!

Ask your nearest dealer for an on-the-job demonstration, or write us direct. No obligation, of course.

IDEAL® tie wire reel

Ideal Reel Company
PADUCAH, KENTUCKY

For more facts, use Request Card at page 18 and circle No. 269

McKissick Builds a better block for Every Purpose

10 TONS — 20 TONS
40 TONS

DROP FORGED, HEAT TREATED, SHEAVES, HOOKS, SHACKLES & YOKES

Extra large bearing diameters.
Pressure grease lubrication.
High speed bronze bushings or Hi-Load roller bearings.

McKISSICK

McKISSICK PRODUCTS CORPORATION
Box 2496 Tulsa, Oklahoma

For more facts, use Request Card at page 18 and circle No. 270

(*Continued from preceding page*)

Much of the credit for the efficient pace of the earthmoving operations goes to the Blythe Bros. maintenance force. The ex-GI GMC lube truck, with a Graco 5-reel lube unit, services a LeTourneau - Westinghouse scraper during the lunch break.

ditches for roadway drainage pipes.

Draglines and pile driving

A dragline operation had to be used to remove over 250,000 cubic yards of muck from an area that had to be backfilled with suitable roadway material. Cranes equipped with Hendrix 1½-yard dragline buckets removed the muck, side-casting it or loading it to haul rigs.

One of the cranes was later used to handle the Del-Mag diesel hammer, riding on 86-foot leads, that drove the 12-inch-square prestressed-concrete piles. These bridge foundation piles, which averaged 15 to 70 feet in length, were driven to a 40-ton bearing by this new type hammer, which develops about 18,000 foot-pounds of energy and has a rate of 53 blows per minute. The 16 bridges required throughout the 11-mile stretch are either supported on prestressed-concrete piles or on shell piles filled with reinforced concrete.

The interlocking sheet piles for the many pier cofferdams were driven by McKiernan-Terry 9-B-3 hammers powered by Cleaver-Brooks steam generators. A McKiernan-Terry E-2 extractor was also on the job to remove the sheet piles after the piers were completed. The contractor had many pumps scattered throughout the project to keep the many cofferdams unwatered. These included two Jaeger 3-inch centrifugal pumps driven by Wisconsin engines; five Jaeger 4-inch pumps; three Gorman-Rupp pumps of 4, 3, and 2-inch capacity; two Domestic 4-inch pumps driven by Continental engines; three Marlow and two Rex 4-inch pumps; and a Homelite 3-inch pump. Pumps were also used during the extremely wet winter weather, when earthmoving production was substantially reduced.

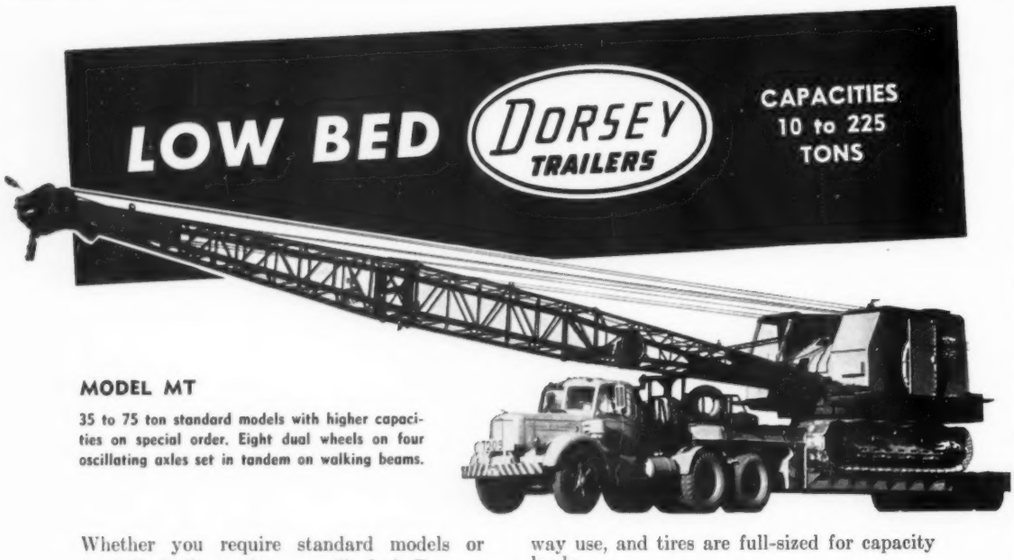
The heavy rainfall during this phase of the job and the impervious gray clay that had to be removed were the two major problems of this job. The wet clay, very difficult to handle, adhered to the sides of scrapers and caused the production rate to decline sharply. If the unstable material had frozen and solidified, the contractor could have used a shovel and dump truck operation for removal. Instead, he had to keep his huge fleet of equipment rolling as fast as possible in sticky clay.

Maintenance in the field

Not all the responsibility for keeping the rigs on the move was held by the equipment operators. A well equipped maintenance force did constant attendance on the machines.

All the rigs scattered throughout the project were lubricated daily by a mobile lubrication van. This was used to grease all rigs after work hours, but it also kept busy during the day, servicing equipment whenever possible.

The van, an ex-GI GMC truck, carried a Graco lube unit with five reels that dispensed the Esso lubricants used exclusively on the project. It also had a Wayne air compressor and a generating set to supply power



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The capacity ratings we quote are conservative, to give you an extra margin of safety when operating under unusual loads or adverse conditions. "Check the 'specs,' and you'll choose Dorseys!"

MODEL MK

Light weight and maneuverable, this low-cost model comes in 10 and 15 ton capacities, semi- and full trailers. 6 or 9-inch drop deck available.

MODEL RG — REMOVABLE GOOSENECK

with Dorsey's patented hydraulic system for efficient one-man front loading or unloading in 10 minutes. Capacities 15 to 75 tons.

MODEL MTS

Stub axles in tandem mounted on sturdy walking beams assure load stability in this model. Available with level or 6-inch drop neck as a semi- or full trailer in capacities 15 to 35 tons.

Dorsey builds Heavy Duty Trailers of all types and sizes — Ask for literature with complete details on any model you need.

DORSEY TRAILERS • ELBA, ALABAMA

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Tractor-drawn scrapers—such as this Bucyrus-Erie 18-yard unit being pulled by a Cat D8 and pushed by an Allis-Chalmers tractor—are used for the short hauls on the 11 miles of turnpike under contract to Blythe Bros.

Daily field servicing for each rig is supplemented by work at this maintenance shop. At the right of the shanty is a mobile shop trailer made by the Boyertown Auto Body Works, Boyertown, Pa.

for lights needed during after-hour maintenance.

Rather than maintain storage tanks for fuel, the contractor set up a schedule for direct delivery of fuel to individual pieces of equipment. Socony-Vacuum delivered fuel in tankers during the noon lunch break, and caught some of the equipment that needed re-fueling. The remainder of the fleet was refueled during another visit after work-hours.

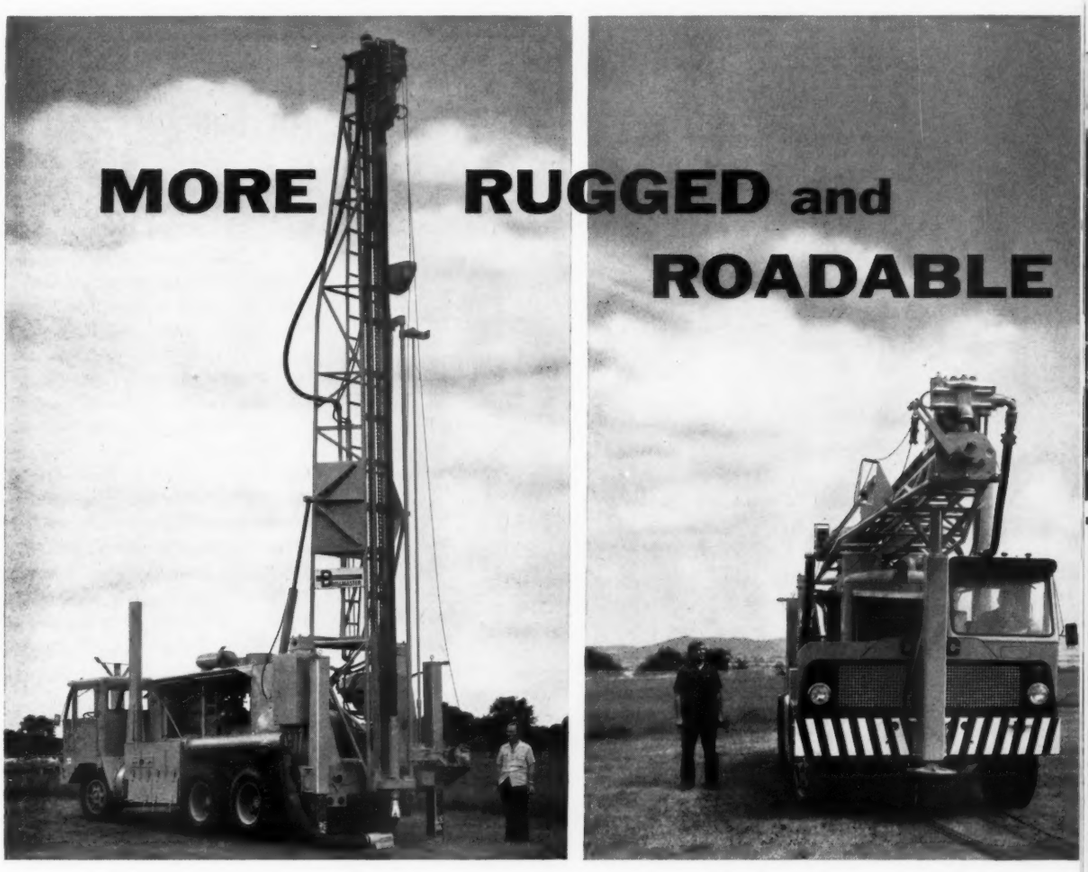
An interesting maintenance feature was the tailor-made filter service, developed by the Wix Corp., Gastonia, N.C. A Wix man periodically visited the project and revised the original fleet survey form made out at the start of the job. This form listed all the equipment used on the job and the correct filter cartridge for each piece of machinery. Merely by consulting the list, the maintenance personnel were able to find the particular type of filter cartridge replacement needed for any piece of equipment in the spread.

All the replacement filter cartridges were stocked in a truck van which also stored other spare parts. Filters were stored in racks, supplied by Wix. Each storage compartment is clearly marked as to type of filter it contains and the specific piece of equipment using this filter. This information, posted in every storage bay, eliminated the possibility of a mechanic making an error when he was replacing filters.

Because of the length of the project, the contractor used a mobile repair shop that kept close to the equipment. Temporary shanties were used to house major repair work, but the tools, drills, lathes, dies, and a Black & Decker grinder were all carried in a mobile shop trailer built by the Boyertown Auto Body Works, Boyertown, Pa. This mobile shop was also equipped with a generating set and an air compressor. The maintenance team handled all equipment repairs except for engine overhauls. Engines requiring overhaul were sent to the contractor's headquarters in Charlotte.

Personnel

Loyd Richey was the project manager for Blythe Bros. John Keeter



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New "beefed-up" mounting means higher performance than ever before obtainable in a truck unit. Air power for all drilling functions is provided by a 600-cfm Gyro-Flo rotary compressor – known the world over for smooth-running performance, year-round dependability and exceptional freedom from maintenance and attention.

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This improved "TRUCM" mounting features a completely new mobile unit especially designed to I-R heavy-duty specifications by Crane Carrier Corp. – leading maker of specialized carriers. It can go anywhere at sustained highway speeds – meets legal requirements in all 48 States.

Here are the specifications, on the road ready to go:

Length	34′ 11″	Weight	34,000 lb.
Height	12′ 6″	Wheel Base	175″
Width	8′	Compressor Fuel Capacity	200 gal.

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was the grading superintendent; Russell Garrison, the assistant grading superintendent; Jack Threatt, superintendent; and W. B. Gowan, the bridge superintendent for Blythe. A Motorola base station and the mobile radios in the Ford pickups tied all the field operations with the project office. Joseph Geary is the resident engineer for John R. Dietz, Harrisburg, Pa., the consulting engineering firm that supervised construction along the Blythe contracts. Daniel R. Neff is the project engineer for Parsons, Brinckerhoff, Hall & Macdonald, New York, N. Y., the over-all consulting firm for the Richmond-Petersburg Turnpike Authority. THE END

March is Red Cross month.
Join, and save lives.

At the Glen Canyon Dam site, a Goodrich rubber air bag is inflated to raise the roof of a demountable Transa Home. The floor is lowered as the bag deflates. Two men do the job in six minutes.

Air bag cuts cost of erecting mobile homes at Glen Canyon Dam

Construction workers at the Glen Canyon Dam and power plant site, Page, Ariz., need living quarters, and an inflatable rubber bag is "blowing up" more than 100 demountable homes made by Transa Homes Corp., Fullerton, Calif.

Using the giant air bag, made by B. F. Goodrich Aviation Products, Akron, Ohio, two men erect a house in six minutes, a job that formerly took 16 men or a crane 3½ hours.

These 520-square-foot demountable homes have the floor and roof hinged to form one side of the unit. The floor folds up against the side of the house, and the roof comes down over it to make a compact unit for transportation. The deflated bag is placed under the 2,000-pound roof section and inflated with a conventional air compressor. In three minutes the bag inflates to an 11-foot-diameter, 15-foot-long cell that raises the roof as it grows in size. The roof is then supported by props and the bag deflated. In another three minutes the 4,500-pound floor section, hinged to folded side and end walls, is lowered onto its foundation. The process can be reversed, with the bag raising the floor and lowering the roof, if a demountable home is to be packed up.

The bag, which has a capacity of 1,450 cubic feet and a deflated area of 300 square feet, weighs 80 pounds and folds into a 36×36×15-inch package. It can be used indefinitely. Contractors may find other uses for the bag. It can be used, for instance, to transport water in a dump truck, or to cover equipment. With the installation of a pressure-sealing zipper, it serves as a hermetically sealed container. THE END

Teamwork on the NEW MACKINAC BRIDGE

Bituminous Surface Laid Smooth and Fast by CEDARAPIDS Paver with Continental Red Seal Power

This *Cedarapids Paver, surfacing Michigan's new Mackinac Bridge, is another fine example of teamwork between Continental Motors and leading builders of specialized machines. The job presented tricky problems, but the paver took them all in stride. In the bridge's length of nearly five miles are some 80 expansion joints, each with steel lips extending 1½ inches above the concrete bridge floor. Cedarapids' unique oscillating track rollers enabled the new paver to pass over the joints without disturbing the screed, and once under way, the work proceeded at 32 fpm.

*Product of Iowa Mfg. Co., Cedar Rapids, Iowa.

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Continental Motors Corporation

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Workmen with Felker saws start cutting trenches in the concrete floor of the old Connecticut Life Insurance Building in Hartford so that electrical conduit can be installed for desks and computers. The work is part of a remodeling job being done for the owner, Aetna Insurance Co.

Conduit runs have been cut out with smooth sides and without disturbing the rest of the floor. This will facilitate finishing the floor after conduits are laid.

Sawing through six miles of slab is part of building reconversion

A big phase of reconverting the old Connecticut General Life Insurance Co. building in Hartford involved removing sections of concrete floor and installing electrical conduit to provide outlets for thousands of desks and computers.

The job, for Aetna Insurance Co., the new owner, might have been done by installing conduit and laying a new floor, or by chipping out the concrete. But the designing firm of William F. Dewey and Herman J. Kropper of Boston called for almost six miles of trench openings to be cut in the floors, conduit laid, and the openings filled with concrete.

The Wadhams & May Co., Hartford, faced with this job, called on Parsons Diamond Products, Inc., West Hartford, which specializes in equipment for sawing masonry and concrete materials. Wadhams & May elected to use Felker diamond wheels and concrete-cutting machines to do the job. Air equipment was ruled out because it would create vibration, overfractures and ragged edges.

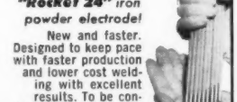
The job went smoothly. The Felker saws cut into the concrete, leaving edges that did not need trimming or finishing before concrete was replaced. Plain water, used to cool the diamond wheels and to eliminate dust, was removed by vacuum cleaners. Only a minimum of concrete was removed so that conduit could be laid, and the trenches were cut without disturbing the surrounding area of floor. THE END

Brochure emphasizes corporate surety bonds

A new brochure on the importance of corporate surety bonds on private construction contracts is being distributed to architects, engineers, owners, banks, and suppliers of labor and material, by members of the National Association of Surety Bond Producers.

It is available from a number of bonding agencies which are members of the association.

Gas Drive Husky Boy



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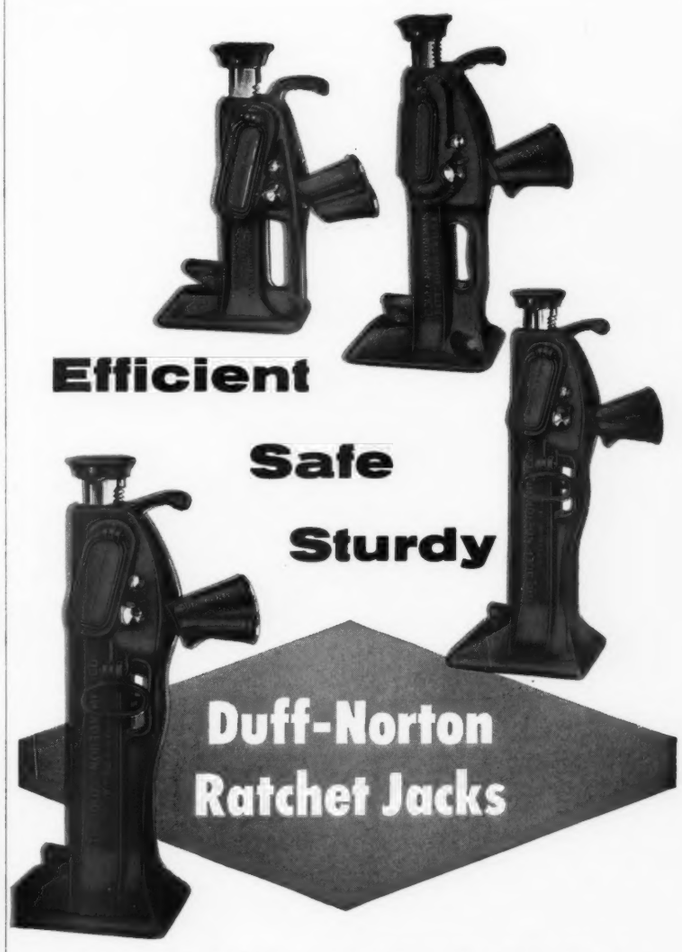

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Duff-Norton offers nine models of these handy jacks with capacities ranging from 5 to 20 tons. A special safety feature of all models makes it impossible to trip the jacks when under load.

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Ratchet Lever
Spur Gear, Electric

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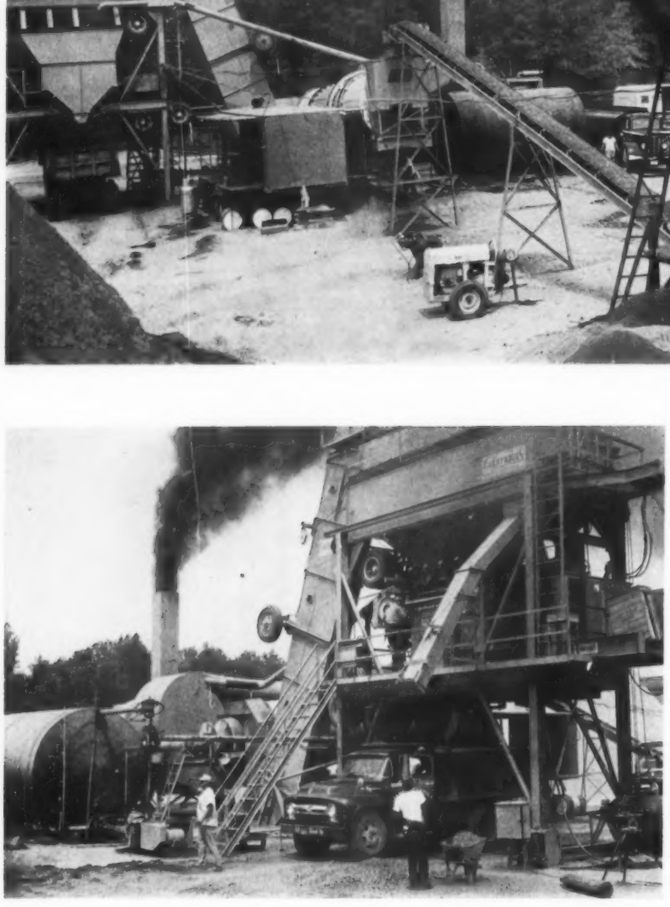
This over-all view of the Cedarapids asphalt-plant setup, used by Blythe Bros. on the 11-mile stretch of the Richmond-Petersburg Turnpike, shows the entire process of the plant. At right, materials are charged into the feeder hopper which feeds the conveyor leading to the plant's dryer. After being screened, weighed, and mixed in the pugmill, the resulting 6,000-pound batch is dumped into a waiting truck, at left.

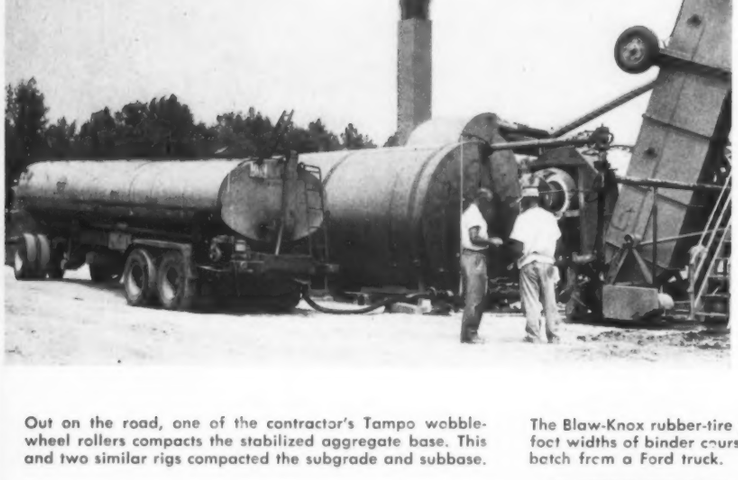


Another 6,000-pound batch goes into a Ford truck. The plant produces both binder and wearing-course material, which requires mixing cycles of 45 and 60 seconds, respectively.

Automatic plant keeps hot-mix moving to pike

Asphaltic concrete laid at rate of 2,600 tons per 12-hour day; electronic grader-blade control cuts need for checking grade

by **ANTHONY N. MAVROUDIS**
field editor



Standard Oil of N. J. asphalt is brought to the 20,000-gallon storage tank—the only item not on wheels—by a 4,000-gallon heated tanker. The transfer is made by means of a vacuum pump and 4-inch flexible hose.

A portable hot-mix plant, one fast paver-finisher, and an electronic grader-blade control all contributed to the high production of Blythe Bros. Co., Charlotte, N. C., on the paving of the Richmond-Petersburg Turnpike in Virginia.

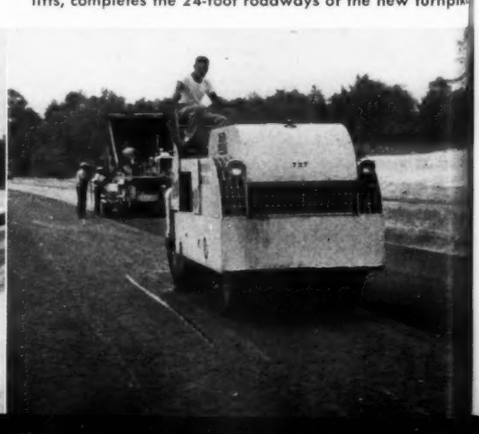
This 35-mile turnpike has two 24-foot roadways separated by a 20-foot grassed median, and 10-foot outside and 3-foot inside stabilized shoulders. Scheduled for completion this spring, it will bypass both Richmond and Petersburg and will ease heavy traffic on U. S. 1.

Blythe Bros., which used one finisher and hit rates of 2,600 tons of asphaltic-concrete paving during 12-hour work days, had four adjacent contracts amounting to over $8 mil-

Out on the road, one of the contractor's Tampo wobble-wheel rollers compacts the stabilized aggregate base. This and two similar rigs compacted the subgrade and subbase.

The Blaw-Knox rubber-tire paver which lays the two 12½-foot widths of binder course for each roadway receives a batch from a Ford truck.

A Buffalo-Springfield tandem roller compacts a binder course lift. A 2-inch wearing surface, placed in two 1-inch lifts, completes the 24-foot roadways of the new turnpike.



lion for an 11-mile stretch. Each contract, because of the letting dates, was in different phases of construction—from grading to paving—at any one time.

Use portable plant

The contractor used a new batching plant, a Cedarapids Model G-60 with completely automatic controls which turned out a 6,000-pound batch. Before the plant was set up at about mid-point along the 11-mile stretch, about 45,000 tons of aggregates and sand were stockpiled at the site. Once batching operations got under way, the stockpiles were constantly replenished by trucks hauling in sand and two sizes of aggregate.

The three stockpiles were arranged in a semi-circle so that a crane with a 2½-yard rehandling bucket could charge the Cedarapids feeder bin. A Cat D8 tractor-dozer maintained the piles as materials were delivered and also pushed the sand and stone within easy reach of the crane. This eliminated all movement of the crane—except for the normal boom swing—and permitted fast and continuous charging of the 4-compartment feeder bin.

Sand and aggregate passed from the bin to two apron feeders that end-dumped into a hopper. From here, the material fell onto a Cedarapids inclined conveyor belt, 24 inches wide and 50 feet long, which raised the sand and stone to the plant's dryer.

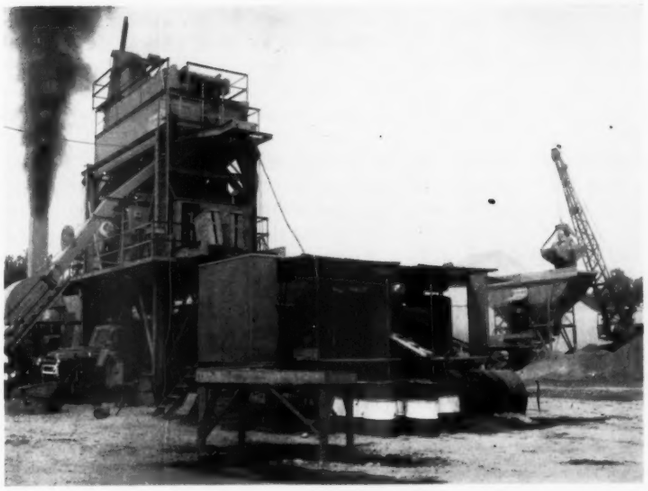
The dryer, 28 feet long and 88 inches in diameter, was fired with a Maxon oil burner having a 3-foot combustion chamber. Material passing through the dryer was picked up by the hot-bucket elevator and raised about 60 feet to the screening unit atop the plant's aggregate bin. Here the mixture of sand and stone passed through the Symons triple-deck vibrating 4×14-foot screens to be separated into three sizes—sand and ¾ and 1¼-inch stone. This material then went to the 3-compartment aggregate bin.

Push-button operation

The plant is equipped with two Hardy Electro-Matic electronic scales, one with a 6,000-pound capacity for aggregate and one 4,000-pound capacity for asphalt. Completely automatic, it is activated by a push button on the control panel. As the weighing cycle begins, one bin compartment gate opens and charges the weigh batcher. As soon as the Hardy scale shows that the proper weight of one ingredient has been dumped, the gate closes automatically and causes one of the other gates to open and begin dumping into the weigh batcher. Electrical connections between the weigh batcher and the aggregate scales open and close the compartment gates, which are pneumatically operated off a Quincy 21-cfm air compressor. The weigh cycle is ended after the 85 to 100 penetration asphalt has been weighed.

At this point, the entire sand and stone contents in the weigh batcher

(*Continued on next page*)



The entire plant is operated by a General Electric 400-amp generator powered by a General Motors diesel. Both are mounted in a trailer for swift over-the-road transport.

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(Continued from preceding page)

are automatically deposited into the pugmill; after 5 seconds, the asphalt is introduced. Mixing time in the pugmill is 45 seconds for binder course material and 60 seconds for wearing surface batches. After the mixing time has elapsed, the 6,000-pound batch is automatically dumped into a waiting batch truck. If a truck is not in position, a "hold" button on the control panel is pressed so that the pugmill retains the batch and keeps mixing. When a truck does arrive at the plant, the entire batching cycle is started again so that the retained batch can be released.

In a 6,000-pound batch of binder course there were 1,740 pounds of sand, 870 pounds of ½-inch stone, 3,160 pounds of ¾ to 1½-inch stone, and 230 pounds of asphalt.

Trucks deliver asphalt

Standard Oil of N. J. asphalt was delivered to the plant in 4,000-gallon heated tankers which, hooked to a vacuum pump by a 4-inch flexible hose, emptied into the 20,000-gallon horizontal storage tank. A Cleaver-Brooks hot-oil boiler pumped circulating hot oil at 375 degrees through jacketed lines located inside the asphalt storage tank. This maintains the stored asphalt in a liquid state.

For every ton of asphaltic concrete produced, the plant burned about two gallons of No. 5 bunker oil to power both the Maxon burner in the dryer and the Cleaver-Brooks boiler. This oil was stored in a 10,000-gallon tank.

Electrical power to operate the entire plant was supplied by a trailer-mounted General Electric 400-amp generator powered by a General Motors diesel. A secondary power source was a Ready-Power 30-amp generator, powered by a small International diesel, which was located in another trailer. This was used during the night, or when the plant was not being operated, to power the asphalt storage tank heating boiler and the lights at the plant.

Portability of plant

Aside from the automatic operation, one of the best liked features of the Cedarapids plant was the ease with which it was transported, erected, and disassembled. According to the contractor, it took about 5 days to completely dismantle the plant, move it about 50 miles, and set it up at the new location ready for production.

Using a Preco electronic blade control on a Cat No. 12 motor grader, the operator obtains the final grade slope of the roadway before paving starts. This attachment automatically and accurately controlled the slope.

The 20,000-gallon asphalt storage tank, the only item not on wheels, was permanently mounted—together with its pumps—on a Rogers trailer. During future work, the storage tank will be operated from this trailer-mounted installation.

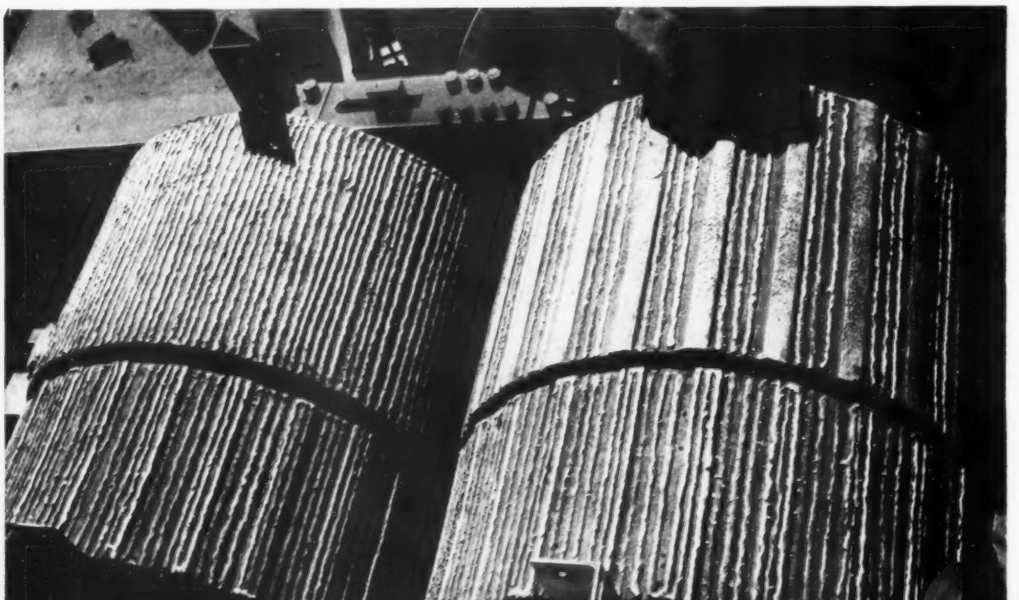
The aggregate bin, vibrating screens, weigh batcher, hot-bucket elevator and pugmill were each equipped with a set of pneumatic tires. The tires had Bendix air brakes, allowing the units they are mounted on to act exactly as trailers being pulled by truck-tractors. The two boilers were permanently mounted in trailers, as were the electrical power units. Only the charging bin and the apron feeders had to be mounted on a truck-trailer to be transported to a new location. A total of 14 truck tractors was needed to move the entire plant and accessories in a single move.

Electronic blade control

The contractor used three Tampo wobble-wheel rollers—one self-propelled and two drawn by International tractors—to compact the underlying subgrade, a blanket of select material, and the stabilized aggregate base course. Both the 6-inch select blanket and the 5-inch aggregate base course were placed in two lifts by a Jersey spreader pulled by a Cat D6.

According to the contractor, a reduction of more than 70 per cent in grade checking ahead of the paver was obtained through the use of a Preco electronic blade control unit on one of the Cat No. 12 graders. This grader was primarily used to obtain the final grade slope of the roadway prior to paving, and it did such an accurate job that the original stakeouts for the fine-grading were reduced by more than 30 per cent. The Preco attachment automatically controlled the exact slope desired, regardless of the position of the grader or the unevenness of the terrain. Its accuracy was within ⅛ inch across a 10-foot width.

In using the Preco control, the operator merely set the desired slope on the slope selector dial at the left-hand side of the control levers. He



To prepare new crushers for a hard life, Wasco County, Oregon, hardfaces rollers with Victor alloy rod. The rollers showed no discernible wear after crushing 3100 tons of extremely hard and abrasive basalt.

Lifesaver for new or used equipment **VICTOR Hardfacing Alloys**

Wasco County, Oregon, uses lots of crushed basalt. This rock crushes readily, yet is extremely hard and highly abrasive, consequently tough on rollers. So, as standard practice, Supt. Wayne Weeks hardfaces all rollers in brand new crushers, before ever they crush a single basalt rock. He reports hardfacing of new equipment prevents excessive wear of surface material, thus maintaining roller size during the work hardening period.

On this new crusher, he used 200 lbs. of Victor #0 semi-automatic wire, size 7/64", to hardface roller faces, and 50 lbs. of tube Victorite coated for finish work around the roller edges. Longer crushing life will quickly pay for the rod.

You, too, can save money and extend the life of equipment subjected to abrasion, impact and heat. Simply make it standard practice to hardface both new and worn equipment with Victor alloy rods. Complete line of 27 different hardfacing rods assures you a right rod for every hardfacing need. Full range of sizes for both acetylene and electric AC and DC applications, either hand, automatic or semi-automatic. Order a supply from your Victor dealer TODAY.

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VICTOR EQUIPMENT COMPANY 42

ALLOY ROD AND METAL DIVISION

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For more facts, use Request Card at page 18 and circle No. 278

then raised or lowered the blade, as required, to control the depth of the cut. The slope across the roadway remained as selected, despite the type of terrain. Only one end of the grader blade is controlled by the attachment; the other end is manually controlled. This allowed the operator to give all his attention to the stake line and the necessary grade changes; the control maintained a constant slope across the cut.

Paving operations

Blythe Bros. used a single Blaw-Knox paving machine to place the three 2½-inch lifts of asphaltic-concrete binder course for the two 24-foot roadways. These lifts were placed in two 12½-foot widths for each roadway; the two 1-inch lifts of wearing surface material were placed in 12-foot widths. Two such pavers placed the wearing surface lifts. A total of 190,000 tons of asphaltic concrete was needed for the 7½-inch binder-base course and the 2-inch wearing surface on the Blythe stretch.

The contractor had nine Ford F-750 tandem-drive 15-ton batch trucks, capable of hauling five 6,000-pound batches to the paver. Three 10-ton tandem rollers—two Buffalo-Springfields and a Galion—compacted the lifts.

Personnel

Loyd Richey was the project manager; W. G. Hunnings, the paving superintendent; Coy Jackson, the plant foreman; Jack Threatt, the general superintendent; and John Keeter, the grading superintendent for Blythe Bros. Co. Joseph Geary was the resident engineer for John R. Dietz, Harrisburg, Pa., the consulting engineering firm which supervised construction along the Blythe Bros. contracts. Daniel R. Neff is the project engineer for Parsons, Brinckerhoff, Hall & Macdonald, New York, N. Y., the over-all consultant for the Richmond-Petersburg Turnpike Authority. THE END

Highway lighting study on Connecticut pike

The Connecticut Turnpike, which has one of the longest sections of continuous highway lighting in the country, will be used for a study on the effect of highway illumination on safety and vehicle operation.

Work will be done under daylight driving conditions, under nighttime conditions before the lights go into operation, and again after lighting installations are completed.

The study is being made by the Connecticut State Highway Department, in cooperation with the U. S. Bureau of Public Roads and the Committee on Highway Lighting of the Highway Research Board.

ACI moves to new address

The American Concrete Institute has moved to a new location at 22400 West 7 Mile Road, Detroit 19, Mich. Its mailing address remains the same: P. O. Box 4754, Redford Station, Detroit 19, Mich.

For more facts, circle No. 279→

HRB reports on visibility of roads at night

Four papers sponsored by the Committee on Night Visibility are contained in HRB bulletin 163, "Night Visibility 1957". The first reports on a study using a visibility meter to evaluate both a uniform and an extremely non-uniform roadway brightness pattern. The second offers photographic night views of a highway lighting test strip on U. S. 1 in Old Lyme, Conn., and contains a discussion of halation, obstacle recognition, and film fogging.

The third paper describes a device for establishing a safe stopping distance at night, and a fourth presents data to establish typical visibility distances of unlighted vehicles, both with and without reflectorized license plates.

This bulletin, priced at 80 cents, may be obtained from the Highway Research Board, 2101 Constitution Ave., Washington 25, D.C.

Report on roadside development sessions

The sessions held by Ohio State University's Department of Landscape Architecture have been printed in booklet form under the title "Fifteenth Short Course on Roadside Development".

Using the "complete highway" as a theme, reports and discussions are centered upon operations and management in landscape work. The booklet takes up such topics as the role of parkways in modern transportation; plant material in highway planting; roadside planting problems; and roadside development costs.

Copies of this report, free of charge, may be obtained from Chief Architect, Ohio Department of Highways, Columbus 15, Ohio.

NEW!

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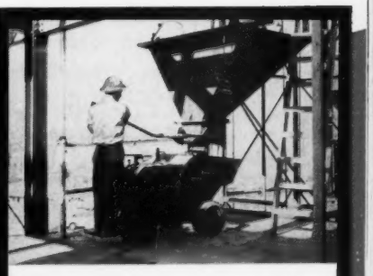
WALK-OR-RIDE
POWER BUGGY®

ALSO FLAT-BED MODEL

Compact, lightweight, extremely maneuverable, the new Whiteman "Walk-or-Ride" Power Buggy® is the perfect answer to placing concrete under many conditions. Travels over lighter, narrow runways, onto elevators, through 31" doors. Turns on a dime, has forward and reverse drive. Pours easily, neatly, accurately with perfected positive-control dumping mechanism.

Operator can either walk behind or ride on fold-down platform. Regulations do not require skilled labor to operate. All the time-tested stamina and rugged performance of the famous Whiteman DB-60 Power Buggy® have been built into this sturdy new Walk-or-Ride model. Ask your Whiteman dealer for full details or write for catalog today.



"Walk-or-Ride" Power Buggy loads from hopper on upper floor.

Pouring is neat and accurate with positive-control dumping mechanism.

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- Precision built. Rugged.

Does the work of FOUR hand buggies

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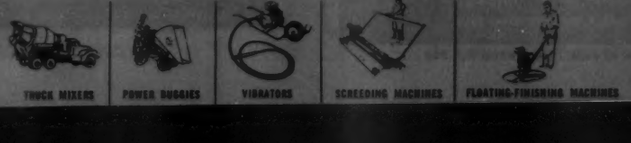
THE LEADER IN CONCRETE EQUIPMENT



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☐ Walk-or-Ride Power Buggy ☐ DB-60 Power Bugg
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Firm _____
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In one of the six borrow areas near the roadway, a Cat DW21 scraper is push-loaded to capacity. More than a million yards of fill is required for this 4.1-mile stretch of the Richmond-Petersburg Turnpike.

Tampo dual-tandem sheepsfoot rollers, pulled by a D8, are among the many different pieces of rolling equipment used to compact the subgrade. ►

Scrapers move dirt fas ahea

Big spread moves from 15,000 to 20,000 yards of borrow every 20 hours on Richmond-Petersburg Turnpike

More than a million cubic yards of borrow required for a 4.1-mile stretch of the new Richmond-Petersburg Turnpike in Virginia was handled basically as a scraper operation by S. J. Groves & Sons Co., Minneapolis, Minn.

Working under a $3,200,000 contract, Groves used a large and fast-moving scraper fleet to move an average of 15,000 to 20,000 cubic yards of material every 20-hour workday. This fleet handled both the borrow and the 354,000 yards of roadway excavation required. This stretch, like the rest of the pike, will have two roadways separated by a grassed median, plus 6-inch-thick outside shoulders and 3-foot-wide inside shoulders of penetrated macadam.

Haul distances vary

The big volume of earth to be moved was handled by a fleet that included twelve Caterpillar DW21 scrapers, three LeTourneau-Westinghouse Model D scrapers, three LeTourneau-Westinghouse scrapers pulled by Cat D8's, and two Heil scrapers pulled by International TD-18 tractors. Average hauling distances for the scrapers were kept at about 3,500 feet; shorter distances were used for the pull-type scrapers.

Groves used an equally large tractor fleet to push-load the scrapers, pull rollers, and spread material on the fills. This fleet consisted of two Allis-Chalmers HD-20 tractors and a Cat D9 as pushers; two D8's, a D6, and an International TD-5, all pull-

Weight concentration in the lower center section eliminates top heaviness. Combined with 6 part block and tackle reeving, it gives OWEN Buckets that extra power to dig in at the beginning—and to continue to dig with equal force on both jaws during the entire closing cycle. At the end of the stroke, there is no power loss and lifting tendency is at a minimum.

Other features that make OWEN the leading clam-shell "seller" are:

One-piece Head Construction

Riveted Bowl Construction

Single Main Shaft

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On this our 50th Anniversary Year, The Owen Bucket Company wishes to express our appreciation for the excellent acceptance of our products and pledges to maintain in the years ahead the high quality of design, workmanship and service that has become associated with OWEN Products.

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For more facts, use Request Card at page 18 and circle No. 280

Need HOSE in a *HURRY?*

Suction • Water • Steam
Air • Multi-Purpose
Discharge • Pile Driver

Wherever your job is—*whenever* you need hose—there's a Continental Warehouse nearby stocked to give you any kind of hose you want—*when* and *where* you want it.

There's no need to wait for distant shipments—no need to stop the job—no need to lose profits.

Any time you need hose call Continental. You'll like the fast service and dependable quality you get from these warehouses:

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CLEVELAND 15, Ohio 2731 Prospect Ave.
DETROIT 27, Mich. 13801 Schoolcraft Ave.
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MEMPHIS 3, Tenn. 268 Madison Ave.
NEW YORK 7, N. Y. 81 Murray St.
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Continental Crush-Proof Suction and Discharge Hose—reinforced with top grade duck plies and springy Stycon rubber cord that *brings hose back to shape if flattened.* Needs no wire. Corrugations allow *greater bends without buckling.* Tough rubber cover and tube, smooth bore. Used for discharge up to 150 p.s.i. Sizes: 1½", 2", 2½", 3". Ask for HOSE and CLOTHING catalog.

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◄ An Allis-Chalmers HD-5 tractor pulls a Vibro-Plus Terrapac roller to compact the 6-inch select subbase material. A Waukesha diesel engine powers the roller.

A Blaw-Knox rubber-tire paver gets a load of binder-base material from a Chevrolet batch truck. In the background, a Buffalo-Springfield 10-ton tandem roller compacts the lift. This course is being placed 7½ inches thick to reduce the required thickness of the granular base course.

fast ahead of hot-mix paving for nation's newest pike

ing sheepsfoot, grid, and pneumatic rollers; and about nine D8's spreading fills and pulling scrapers. Three No. 12 motor graders were used during the earthmoving phase of the contract for stripping and fine-grading.

The contractor had to open six borrow areas to obtain the required fill material. These were located adjacent to the right-of-way. All borrow hauling was done by the scraper fleet, eliminating the need for dump trucks and shovels.

These borrow areas were worked 20 hours a day and Groves had to illuminate them, as well as the fill areas. Light was provided by two Kohler plants, a 1,500-watt and a 5-kw, and two General Electric 16-kw light plants. All were powered by gasoline-driven generators.

Compacting fills

The roadway fills, the highest of which was 35 feet, were placed in 8-inch lifts and compacted to a density of 95 per cent of modified Proctor. Compaction was done by Hyster grid rollers and Tampo sheepsfoot rollers pulled by a Caterpillar D6 and D8, respectively. A Bros 50-ton pneumatic roller, pulled by a D8, completed the compaction of the subgrade.

The compacted subgrade was then topped with 6 inches of select subbase material, which was spread in two 13-foot widths for each roadway

(*Continued on next page*)

MACHINE A-C PIPE ENDS any profile... on the job!

model B
SPRING LOAD
A-C MACHINING AND TAPERING TOOL

"One-man" precision field tool machines A-C pipe *faster*

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- END FACING

Sizes for 4"-8" and 10"-20" pipe. For holding 4"-20" A-C pipe, use Spring Load V-20 vise.

Eliminates machine shop, lathe, hauling costs!

This portable machining tool makes lathe-smooth, close tolerance profiles for closures up to 9" couplings. Eliminates adapters, trues up pipe. Adjusts in seconds for any profile by simple change of cam plate. Has automatic feed with quick release. Salvages broken and short pieces. Approved by leading A-C pipe manufacturers. Ask for it, and Spring Load A-C Pipe Cutters at your suppliers, or write.

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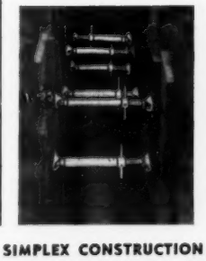
Doing It the Easy Way with SIMPLEX JACKS...

PRESTRESSING CONCRETE SLAB with a Simplex Re-Mo-Trol 30-ton hydraulic puller. When cured, 26' x 38' slab will be raised to form third story floor of school building. Intervening floors will then be cast, prestressed and raised into position. Only Re-Mo-Trol gives straight-line pull to prestressing wires through unique "center-hole", eliminates need for complicated back-up devices. Also has many uses as a powerful lifting jack on construction jobs.

15-TONS OF LIFT on either the cap or toe of this Simplex Model 24A jack is a feature that construction men like. Full capacity toe lets them lift from minimum clearances, cuts wedging and blocking necessary. Jack is ratchet lowering lever type; raises or lowers notch-by-notch —can't be tripped. 13" of lift.

TIMBER "STRETCHER" speeds shoring on foundation and tunneling work. Simplex Shoring Jacks, available in 25-ton or 35-ton sizes, are faster and safer than old-fashioned saw and wedge methods.



WHEN YOU'RE DOWN A HOLE you can feel safe with these Simplex Trench Braces on the job. Made entirely of drop forged steel. Easy to adjust, grip at any angle, can be nailed to timber for slip-proof safety. For any width trench.

SIMPLEX CONSTRUCTION JACKS are fully described in General Catalog 56. Write for a free copy.

SIMPLEX JACKS

TEMPLETON, KENLY & CO.
2511 Gardner Road • Broadview, Illinois

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(Continued from preceding page)

A Butler 60×60-foot prefabricated metal building serves the contractor as a centrally located maintenance shop for major repairs. Lubrication and fueling are usually done in the field.

by a Blaw-Knox spreader. This lift was compacted by a Vibro-Plus Terrapac, powered by a Waukesha diesel engine and pulled by an Allis-Chalmers HD-5 tractor. A Hyster grid roller pulled by a D6 was also used on this select material.

A 5-inch-thick soil-aggregate base course, also placed in 13-foot widths by the spreader, was compacted by a Buffalo-Springfield 10-ton tandem roller and a Galion 10-ton, 3-wheel roller. This course, requiring 167,000 square yards of material, was compacted to a density of 100 per cent of modified Proctor.

Asphaltic pavement

The subcontractor doing the paving for Groves used a Blaw-Knox rubber-tire paver and a Barber-Greene finisher to place the 7½ inches of binder course and the 2-inch wearing surface. The subcontractor generally used the two machines side by side after the rubber-tire finisher placed the initial lifts. The binder course, being placed in 25-foot widths for each roadway, consists of three 2½-inch compacted lifts. The wearing surface, 24 feet wide, is being put down in a single lift. Each lift is compacted by the same Buffalo-Springfield and Galion steel-wheel rollers used to compact the 5-inch base course.

The asphaltic-concrete binder course is being laid 7½ inches thick to reduce the required thickness of the granular base course. Because of the load-bearing qualities of this bituminous binder-base course, only 5 inches of aggregate base is needed to carry the heavy truck traffic anticipated on the roadway. This type of road construction, used successfully in Virginia, reduces the possibility of failures and makes the roadway easier to maintain.

Maintenance

Groves used a truck-mounted lubrication van, equipped with a Graco lube unit, to handle all the spot lubrication of equipment on the job. D-A lubricants and Standard Oil of N. J. gas and fuel oil were used by the lube crews. Major repairs were done at a maintenance shop housed in a Butler 60×60-foot prefabricated metal building located at about the midpoint of the job on U. S. 1.

Personnel

J. F. Vallone was the project manager; Harry M. Johnson, Jr., the general superintendent; Robert Hynes, the project engineer; Art Hedberg, the office manager; and George Searle, the office and soils engineer for the project.

THE END

Book on concrete paving and winter bridge work

"Concrete Pavement Construction and Winter Construction of Bridges" has been published as HRB bulletin 162. The first of three papers presents, in general terms, criteria to be used in preparing plans and specifications for the control of modern concrete pavement construction; the second reviews past procedures on pavement construction in Michigan that have led to the new pavement jointing techniques now used in that state. The third paper describes the use of insulated forms to permit concreting operations on highway bridge construction to continue during subfreezing weather in South Dakota.

Priced at 60 cents, this bulletin is available from the Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

A list of coming conventions, of interest to our readers, appears on page 67 of this issue.

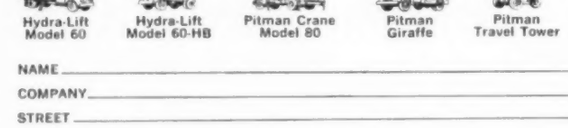
Now!

HYDRA-LIFT DIGS and LIFTS

Now, just what utility companies across the nation have been asking for: A HYDRAULIC DIGGER ATTACHMENT for the Pitman Hydra-Lift. Now, you can use Hydra-Lift to dig holes up to 24" in diameter, then use Hydra-Lift to set the pole, **without** removing the digger attachment. No need to move your truck, either, when you want to dig a hole across a ditch, along a slope or in some other hard-to-reach spot. All you do is swing the boom, spot your auger and start drilling. Write, wire or call today. Get complete details on this quick, easy way to make remarkable savings in the time and cost of digging holes and setting poles. You'll find Hydra-Lift has scores of other uses, too.

The auger of the new digger attachment for Pitman Hydra-Lift, Model 60HB, is powered by the same hydraulic system that powers the Hydra-Lift itself. Attachment handles augers with diameters up to 24". Pitman can supply augers with flights of varying lengths, also a variety of different boring heads. Also available is a hydraulic pole puller attachment, operated by same hydraulic system that operates Hydra-Lift. Use the handy coupon below to get full details on the new digger attachment, or any of the other products manufactured by Pitman.

Please send me full details on the Hydra-Lift, Model 60HB, with hydraulic digger attachment____ and/or hydraulic pole puller____. (Please check)
For details on other Pitman products, just check below.



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PITMAN MANUFACTURING COMPANY
300 West 79th Terrace, Kansas City, Mo.

For more facts, use coupon, or Request Card at page 18 and circle No. 284

Fast forming techniques speed erection of piers

Contractor's use of prefabricated steel column forms eliminates need for guying as high lifts are placed

A bucket of concrete is swung to the top of a 32-foot lift to complete a 2-lift pour on a column. The steel prefabricated forms are supported by a 4-foot form section containing the top of the first lift.

A Lorain truck crane excavates a cofferdam for a pier as work continues in various stages of construction. Cofferdams were required for many of the piers located near streets, buildings, and utilities.

Construction of 48 hammerhead-type concrete piers—at a rate of two per week—owes a lot to the contractor's modern and efficient forming techniques.

T. A. Loving & Co., Goldsboro, N. C., used prefabricated steel forms to handle substructure work on the northern portion of the James River Bridge in Richmond, Va., the bridge that will speed Richmond-Petersburg Turnpike traffic across the river. When completed, it will have six lanes carried by two parallel rows of hammerhead piers. A total of 100 piers was required for the 4,182-foot-long bridge; Loving built 48 of these, and the remainder were built by Bowers Construction Co., Raleigh, N. C., which used virtually the same technique as Loving.

Use telescopic forms

Initial column pours of varying heights were made atop the concrete foundations with telescopic forms. Height of each telescopic form can be adjusted to any elevation, from fractions of inches to multiples of a foot. The initial pours were necessary for the proper spacing and alignment of the rustication grooves on each pier. These grooves were placed in the concrete at 8-foot intervals, starting from the top down, but they do not line up because the entire bridge is on a grade.

A groove was formed by a metal angle strip which was welded to a circular angle plate. Plates were bolted between the flanges of every other 4-foot section. Before concrete was placed, the triangular metal fillers were covered with paper tape to keep them from sticking to the concrete and making stripping operations difficult.

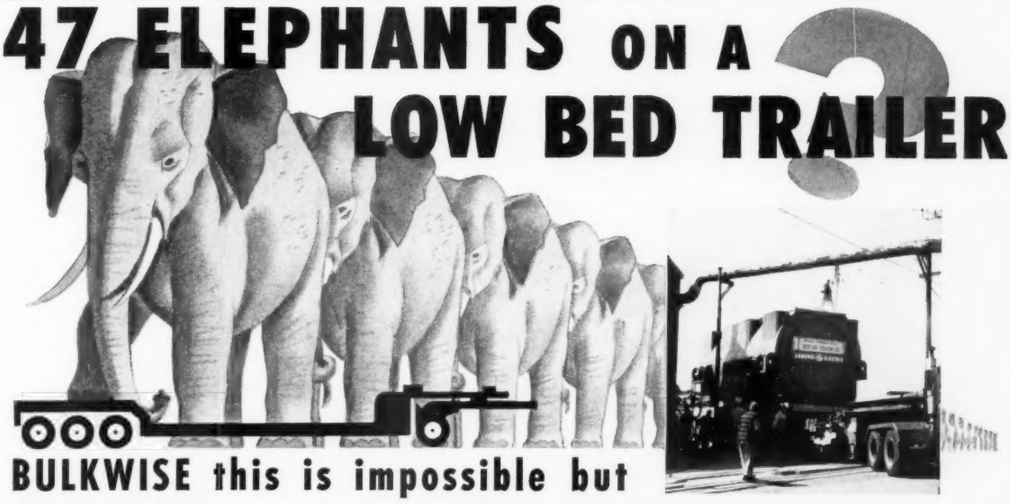
Once the telescopic forms were positioned and the concrete poured around the forty No. 11 dowels extending from the footing, the remaining height of the column was poured. Each column was reinforced for its entire height with forty No. 10 bars that were wrapped with No. 5 hoops on 12-inch centers. This reinforcing was set by a crane with an 85-foot boom and a crane with an 80-foot boom before the form sections were erected.

The Loving and Bowers firms used different techniques when it came to pouring the columns. Bowers made the pour in 16-foot lifts above the

(Continued on next page)

For more facts, circle No. 286→

47 ELEPHANTS ON A ? LOW BED TRAILER



BULKWISE this is impossible but WEIGHTWISE a comparable load has been hauled on a ROGERS TRAILER

Consider, for example, the feat of Roger Sherman Transfer Co. of East Hartford, Connecticut, in moving this exceptionally heavy generator component on a 32-wheel Rogers Trailer.

This General Electric stator was moved over 600 circuitous miles by rail, water and roadway, being finally transferred from dockside to the Boston Edison plant at Everett, Mass., by trailer.

Weighing 467,000 pounds, equivalent to a herd of 47 elephants, the stator was said to be the heaviest single piece of equipment ever to enter Boston Harbor.

Ingeniously planning the difficult operation, Roger Sherman specialists used 25,000 feet of lumber to protect dock and roadway from damage.

Since the pioneer days of their development Rogers Trailers have been the popular choice of leading riggers because of their rugged dependability, safety of operation, maneuverability and long life under difficult conditions.

PACKY SAYS: *"How many of us would be required to haul such tremendous weight? I give up!"*

ROGERS BROTHERS CORPORATION, Albion, Pa.

Export Office: 50 Church St., New York 7, N. Y., U. S. A.—Cable Address: Brosites

For more facts, use Request Card at page 18 and circle No. 285

ROADS THAT TOOK A REAL WINTER BEATING THIS YEAR Need

PROCESSED STOCKPILE MIX

MAINTAIN HIGH QUALITY — ELIMINATE REPEAT MAINTENANCE JOBS

Kotal Stockpile Mixes are tough, more stable and more durable — they will not "kick out" under heavy traffic. They resist the stripping action of water and the asphalt surface retains its life far beyond normal service expectancy. For roads that have suffered the extremes of freezing and thawing — use workable, all weather Kotal Stockpile Mixes — the mixes that are immediately available from stockpile and workable regardless of weather conditions.

KOTAL PROCESSED STOCKPILE MIXES ARE SPECIFICATION MIXES IN MANY STATES

THEY ARE ECONOMICAL — SAVE TIME, LABOR & MATERIALS

Some exclusive franchises still available.

New 2-color brochure available on request.

KOTAL Company

360 SPRINGFIELD AVE. • SUMMIT, N. J.

The top two form sections for columns support the hammerhead pours. The supporting trusses are secured to bolts embedded in the top 8 feet of the column and to the top two Blaw-Knox form sections.

(Continued from preceding page)

variable initial pour. Loving used only two lifts for each column: an adjustable lift ranging from 24 to 39 feet, and a single 32-foot lift. Loving used a crane with a 100-foot boom to handle the concrete-placing operation. This crane used two Blaw-Knox 1-yard concrete buckets; one placed the mix while the other was being filled by the ready-mix truck.

Two men, located on a timber platform atop the column forms, handled the positioning and opening of the buckets. The timber platform also held the hopper and trunk chute used to place the concrete.

The column pours were consolidated by a vibrator handled by a man inside the forms. Two additional electric vibrators were used on the hammerhead pours. The Master and two Thors were powered by a diesel generating set on the ground.

The column forms required no guy wires to support or brace the pours. This was done through the use of the 4-foot form section placed on top of the sections making up the lower lifts. After concrete had set, all sections below this ring were removed and re-set for the next lift. The top form section of the lower lift remained in place, securely held by the 4 feet of concrete inside, to support the added vertical pressure.

The forms, sprayed with form oil before pouring started, were stripped easily after 48 hours. Then Truscon curing compound was sprayed on the concrete.

Hammerhead pours

The top two form sections of each column were left in place to help position and support the prefabricated steel hammerhead forms. The supporting truss of the hammerhead forms was bolted to eight 1¼-inch-diameter anchor bolts embedded in the top 8 feet of the column. These 24-inch-long bolts, supported by the steel column forms during pouring operations, were embedded in the concrete at a 45-degree angle and only 6 inches was left protruding. Five days after the column pour, or when concrete attained a strength of 2,000 psi, the side trusses were bolted to the top form sections and the embedded anchor bolts. Reinforcing steel for the hammerhead, fabricated on the ground, was positioned as a unit in the forms before concrete was poured.

The hammerhead side forms were

Girder pads are cast higher than necessary to permit grinding which will assure a smooth surface. Crews with a Berg concrete-surfacing machine cut ¼ inch off each pad.

WIRE ROPE AT WORK

This hungry shovel, doggedly eating away at a steep embankment, thrives on a diet of dirt and rock. While working in the vicinity of York, Pennsylvania, it scooped out an average of 2,000 cu yd per day with its 3½-yd dipper. The job: preparing right-of-way for a new express route between York and Baltimore.

In places a deep cut was required, and the digging had to proceed at a steady pace, free of interruptions. The contractor, J. Robert Bazley Inc., guarded against wire rope failures by rigging the shovel with Bethlehem Purple Strand. This tough wire rope was furnished in the 6 x 25 construction for both hoist and boom lines. As always, its high strength and durability were important factors in keeping the shovel going full-tilt.

Bethlehem Steel Company, Bethlehem, Pa. On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

Mill depots and distributors from coast to coast stock Bethlehem rope for the following industries and numerous others:

CONSTRUCTION • EXCAVATING • MINING • QUARRYING • PETROLEUM • LOGGING • MANUFACTURING

BETHLEHEM WIRE ROPE

BETHLEHEM STEEL

For more facts, use Request Card at page 18 and circle No. 287

One of the cofferdams required for a pier footing is being excavated next to a railroad trestle and street. Cofferdam rings are 18-inch, 50-pound stringers, spaced 6 to 8 feet apart. They are being driven by a crane's drop hammer.

steel piles, 12 to 46 feet long, which were driven to rock by a Vulcan No. 1 hammer. There were 28 piles driven for each footing.

The piles were capped with a 7-foot-thick concrete slab which tapers upward from 19½×23½ feet to an 8½×8½-foot surface at the center. A total of forty No. 11 vertical dowels, 11½ feet long, were embedded in the footing and spaced equally around a 7½-foot-diameter circle. Only 6 feet of the dowels was embedded, leaving 5½ feet to protrude into the column pour. Each of the column foundations required about 105 cubic yards of concrete. They were formed with timber formwork fabricated on the job and with ready-mix concrete. The concrete was placed directly with the transit-mix truck chutes or with concrete buckets.

Many times, when the footings were adjacent to existing streets, buildings, and utilities, the contractor had to drive a rectangular sheeting cofferdam for the foundation work. These cofferdams, of interlocking sheeting, were driven by truck cranes—one a Lorain 50K—which also handled the excavation. Loving used 18-inch, 50-pound stringers to form the cofferdam rings. The first cofferdam ring was built inside the cofferdam and driven downward by a drop hammer as the excavation progressed. Then other rings were built, 6 to 8 feet apart, to support the sheeting walls.

Six piers requiring cofferdams had to be built in an abandoned barge canal and these did not need foundation piles.

These cofferdams were driven by a crane mounted on a 110×30-foot barge. Before unwatering the cofferdams, the contractor placed 10-foot-thick tremie seals requiring 200 to 300 cubic yards of concrete. This was stripped after 48 hours, but the trusses were left in place to support the bottom forms until the concrete reached a 2,000-psi strength. This was determined by testing a concrete cylinder.

A Berg concrete-surfacing machine, powered by a gasoline engine, was used atop the poured hammerhead to cut ¼ inch off the six monolithically cast girder pads. The pads were purposely cast higher than required so that a smooth surface could be obtained by grinding. A working platform, made of steel stringers, was used to protect the concrete-finishing crew from any mishaps during this operation. The completed hammerhead measures 8½ feet high above the column, 44 feet in length, and 4 feet in width.

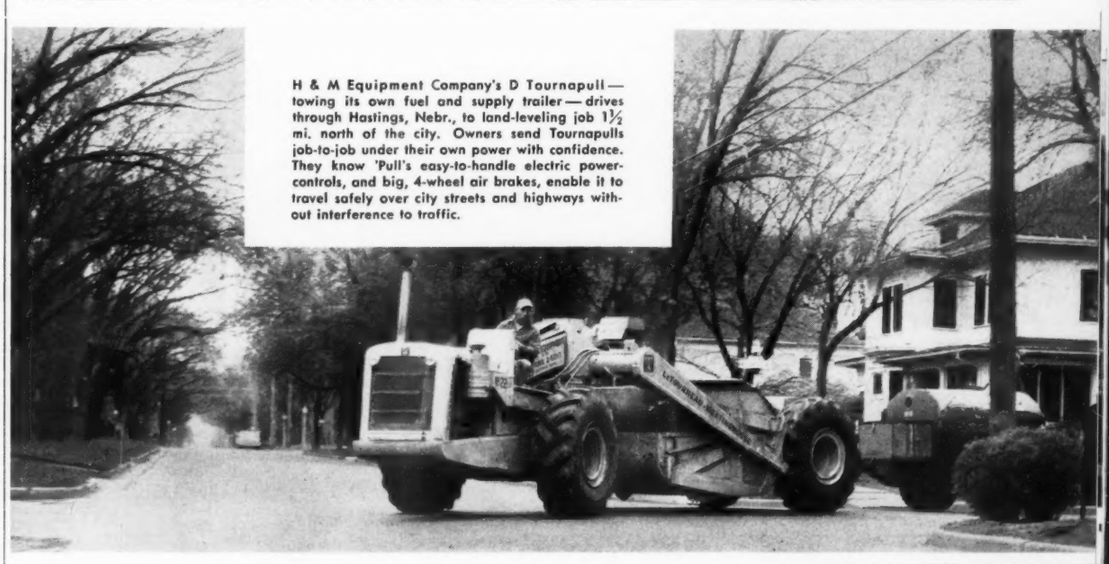
The steel forms were insulated during the winter months to prevent any possible freezing of the concrete pours. This insulation consisted of a 2-inch blanket of Fiberglas, stud-welded to the form exteriors and covered with aluminum foil. The foil kept the Fiberglas from being damaged by foul weather.

Under this $1,151,000 subcontract for the northern piers, the hammerhead piers between the northern shore of the James River and Richmond had to be given varied spacings because of existing foundation conditions in the city. Careful location was a must, since provision had to be made for railyards, a barge canal, sewer lines, and water, gas, and electric utilities—plus the demolition of 32 buildings.

American Bridge Co., the construction arm of United States Steel, is handling the steel erection for the entire length of the superstructure. Thorington Construction Co., Richmond, Va., will pour the concrete deck. Some 45,000 cubic yards of concrete will be used for the structure: Loving and Bowers require 15,000 and 20,000 yards, respectively, and Thorington's deck contract will require 10,000 yards.

Foundations

Of the 47 columns built by Loving, 17 are founded on bedrock. This includes six in an abandoned barge canal. These were seal-coated. The remaining piers required 10-BP-53



H & M Equipment Company's D Tournapull—towing its own fuel and supply trailer—drives through Hastings, Nebr., to land-leveling job 1½ mi. north of the city. Owners send Tournapulls job-to-job under their own power with confidence. They know 'Pull's easy-to-handle electric power-controls, and big, 4-wheel air brakes, enable it to travel safely over city streets and highways without interference to traffic.

"Runs anywhere quickly... handles many different jobs"

says contractor

H & M Equipment Company Inc., Hastings, Nebraska, contracts to handle both large and small yardage assignments throughout the south-central section of the state. The tool most often used to complete these scattered jobs is their rubber-tired, 29.5 mph LeTourneau-Westinghouse D Tournapull®. Said C. J. Hargleroad, President of the firm, "The 'D' is versatile and flexible. It can run anywhere quickly ... handles many different jobs."

Here are two typical examples of how this "work-and-run" D 'Pull* performs:

Handles land-leveling job

7 AM, Tournapull operator arrives at company's yard. He is told to handle land-leveling job at the Bob Bloom farm, 1½ miles north of the city. Operator hooks on supply trailer, climbs aboard "D", and drives off through city traffic and open highway to the farm. Arriving at job site, operator unhooks supply trailer and immediately goes to work moving dirt. With D Tournapull, there's no expense and lost time moving in extra men and truck-trailer transport equipment. Just *one man* and *one machine* completed the job!

Helps build road, sewer bed

Next day, 7½-yd. Tournapull (new "D" now has 9-cu. yd. capacity ... see below) is sent to help build a road and excavate sewer bed for new sewage-treatment plant, northeast of Hastings. Unit drives the 2.8 miles to job — its big rubber tires crossing pavement, blacktop, railroad tracks without damage — in less than 10 minutes.

At the site, D 'Pull handles both jobs with one operation. Tournapull self-loads from sewer bed, and hauls material to new road, where it is spread as fill.

"Easiest machine on the operator"

Commented Superintendent Melvin Brannagan, "6 times I roaded the 'D' from Chappell, Nebr. to Hastings—a distance of 250 miles. Each time I made it within a day. It's the coolest, cleanest, and easiest machine on the operator."

D Tournapull is shown self-loading black loam on farm land-leveling job. The enriched land will now have better moisture distribution ... grow better crops.

Building road for Hastings' new ½ million dollar sewage-treatment plant, D 'Pull spreads load in low spots. Unit's fingertip electric control permits precision spreading ... in shallow layers or as deep as 23¾".

Get facts on improved 9-yd. "D"

Improved LeTourneau-Westinghouse D Tournapull now has 9 cu. yards heaped capacity. With bare 8' wide road clearance and axle-load within 9-ton limit, machine can be roaded anywhere without permit. Find out how this one-man dirtmover can help you earn bigger profits on your scattered construction jobs. Call or write for complete details. *Trademark DP-1601-DCJ-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 288

done with a tremie tube using burlap sacks to maintain the successive concrete batches, and ready-mix concrete handled by the barge-mounted crane. After the cofferdam was dewatered, the 7-foot-thick foundation pours were made atop the tremie seal.

Loving used an Ingersoll-Rand 900-cfm, a Gardner-Denver 550 and a 360-cfm air compressors to power the Vulcan hammer while sheeting and bearing piles were being driven. The compressors also powered the pneumatic tools used during the excavation of the cofferdams.

Personnel

G. B. Trimble and Larry McDade were the superintendents on the job for T. A. Loving & Co. S. R. Ransom is the resident engineer and Sy Klein, the assistant resident engineer, for D. B. Steinman, New York, N. Y., the consulting engineer handling the design and field supervision for the entire structure. Sal Guttilla is handling the inspection, for Steinman, on the job.

Parsons, Brinckerhoff, Hall & Macdonald, New York, N. Y., is the overall general consulting engineering firm for the Richmond-Petersburg Turnpike Authority. THE END

Ward firm moves offices

Joseph S. Ward, P. E., consulting soil and foundation engineer, has moved his offices to 91 Roseland Ave., Caldwell, N. J. The new location combines office and laboratory facilities on a one-acre tract of land.

T. J. Camarco, contractor of Carmel, N. Y., rigged up a hydraulic lift to raise the Stow J S vibrating screed, attached to his Blaw-Knox road spreader, off the slab. When the screed is in place on the forms, chains attached to the spreader pull it ahead.

Firm modifies spreader to meet specifications

To meet specifications on a concrete road job in New York State, T. J. Camarco of Camarco Contractors Inc., Carmel, N. Y., had to vibrate the concrete before finishing was done. Though his spreader was not equipped with vibrators, Camarco adapted it to the job. A vibrating screed, ordinarily pulled by hand, was attached to the rig to meet state requirements. Incidentally, it saved money for the contractor.

A Stow J S vibrating screed, 12 feet long, was the answer to his needs. Camarco rigged up a hydraulic-lift arrangement that lifted the screed by chains attached to eyebolts on top of the end roller assemblies. Flanged rollers were used to make it easier for the vibrating screed to ride on the forms. When lowered into place on the forms, the screed was pulled ahead by chains attached from the front of the rollers to the spreader.

After the concrete had been struck off, a finishing machine put the final finish on the slab.

Canadian map depicts St. Lawrence Seaway

A high-level view of the St. Lawrence Seaway has been published by the St. Lawrence Seaway Authority.

The map, bilingual (French and English) in format and printed in color in a vertical projection, depicts a distance of about 400 miles, from Montreal to Lake Erie. It clearly indicates the course of the waterways, major cities, new towns built in the International Rapids section, and major landmarks of the waterway—its locks, power dams, and bridges.

The map is available on request from offices of the St. Lawrence Seaway Authority in Montreal or Ottawa.

Chain Belt acquires paver

The Chain Belt Co., Milwaukee, Wis., has acquired the design and rights to manufacture the Quad-City slip form paver, originally developed by the Quad-City Construction Co., Rock Island, Ill.

The machine, presently being produced at Rock Island, spreads, vibrates, screeds, forms, and finishes concrete roads from 6 to 12 inches thick in one pass.

27 SELF-PRIMERS

...and Barnes pumps prime without fail!

27 versatile models meet most construction needs—designed for any power source—deliver 2500 to 90,000 gph—available from one source of supply nearby!

You get the ultimate in reliable self-priming when you standardize on Barnes *Blue Ribbon Quality* pumps!

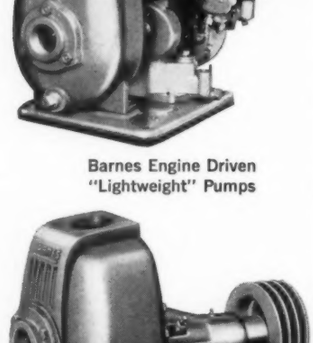
Barnes exclusive self-priming principle for centrifugal pumps incorporates a *free passage vent* adjacent to the periphery of the impeller. It defies clogging. *It primes without fail*—even with as little as ⅓ normal water level in the pump!

In your business, the chief test of any pump is in the years of continuous, low-cost operation it delivers. That is where Barnes self-primers stand out because every model is proved in our Blue Ribbon Quality Test Booth *before* entering the field! Ask your Barnes distributor for handy Construction Pump Selector #238—or write to us. Address Dept. B-38.

BARNES

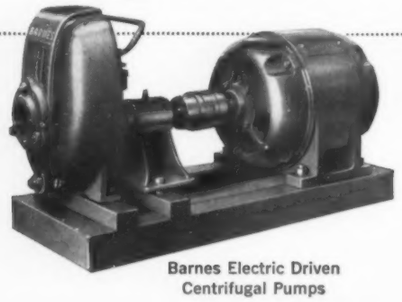
Barnes Manufacturing Co.
Mansfield, Ohio

Barnes Engine Driven "Lightweight" Pumps



Barnes Universal Drive Centrifugal Pumps

Barnes Engine Driven 2 and 4 Wheeled Pumps



Barnes Electric Driven Centrifugal Pumps

Specify Barnes Blue Ribbon Quality ... it pays off!

5860

For more facts, use Request Card at page 18 and circle No. 289

Avoid legal pitfalls

Government contractor was delayed on project

THE PROBLEMS: *A government contract called for construction of earthwork and structures on an extensive hydroelectric and irrigation project. The cost of performance was increased by delays in deliveries by the government. Under the circumstances, was the contractor entitled to collect for delays in furnishing (1) a penstock, (2) detailed drawings, and (3) materials?*

THE ANSWERS: (1, 2) Yes. (3) No. (Peter Kiewit Sons' Co. v. United States, 151 Fed. Supp. 726, decided by the United States Court of Claims.)

As to the penstock, the government knew, when it ordered the work to proceed, that the supplier was having difficulty in getting materials needed to construct it. Yet the government placed with the supplier another contract for a penstock which was given priority over the first penstock. The government's action could be justified only upon a false "assumption that the government may, with impunity, do whatever is good for its own interests, regardless of the harm which may result to individuals". About $21,560.50 was allowed as damages.

As to the delay in delivering some 2,500 detailed drawings, "when plaintiffs were given notice to proceed . . . they had every right to expect timely delivery of the drawings in order to enable them to perform as required, and the government's failure is a breach for which damages can be awarded". It is not necessary that the precise amount of damages be ascertainable. The $58,029.75 was allowed on a theory that at least half of all delays was caused by failure to deliver the drawings promptly.

No damages were allowed for delay in furnishing materials needed for embedding, because no negligence or willfulness was shown. Under the government's normal procurement system the materials could have been obtained and delivered in due time, but here the delay was due to uncontemplated short supply available on the market. When, as here, the contract does not call for delivery on any specific date, "if the government exerts every effort to supply the contractor with the necessary materials on time, it cannot be held that it has willfully or negligently interfered with performance".

Edited by A. L. H. STREET
Attorney-at-Law

These brief extracts of court decisions may aid you. Local ordinances or state laws may alter conditions in your community. If in doubt consult your own attorney.

Third parties were not contract beneficiaries

THE PROBLEM: *A Pennsylvania dam-construction contract required the contractor to maintain liability insurance that would "protect him, and any subcontractor . . . from claims for damages for personal injury . . . as well as from claims for property damages, which may arise from operations under this contract, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them." A tractor was damaged while being used by a subcontractor. Did the owner of the tractor have a valid claim against the general contractor because the latter had not taken out liability insurance that would cover the damage?*

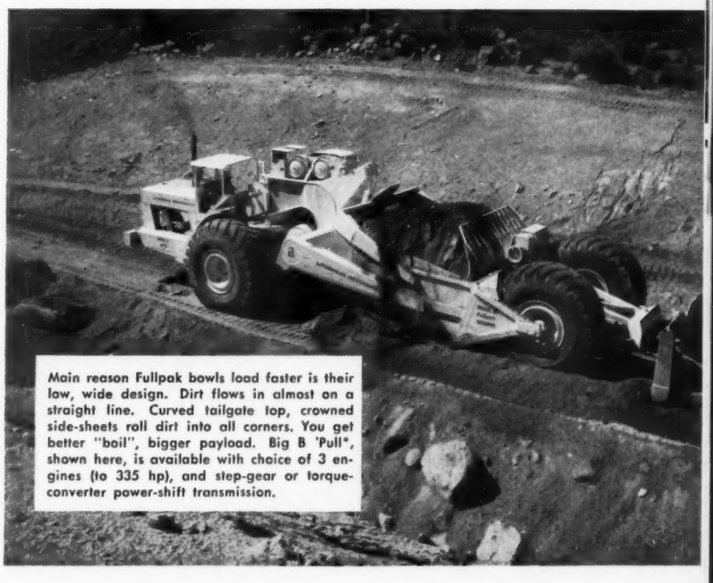
THE ANSWER: No. (Mowrer v. Poirier & McLane Corp., 114 Atl. 2d 88, decided by the Pennsylvania Supreme Court.)

Although three justices of the court disagreed, the majority decided that the contract provision for liability insurance was not for the benefit of third parties. Through the contract requirement for liability insurance, the Commonwealth merely sought to free the contractor and subcontractors from such direct liability as to make certain that the work would be completed according to contract. In other words the insurance provision was intended to protect the contractor and subcontractors against damage claims and not to assure claimant's payment. The fact that insurance would incidentally or indirectly benefit third parties did not give them any right to hold the gen-

Electric controls speed work-motion of Tournapulls. 210 hp, 18-yd. "C", shown, is controlled by fingertip switches on dashboard. Simple, weatherproof motors give split-second response in powering apron-lift, tailgate motion, bowl-hoist, and steer. World-wide use over many years proves electric controls easiest to use and to maintain, fastest acting.

When is the best time to replace an earthmover?

There's a new standard, in earthmoving, for deciding when a machine needs replacement. Years ago, you remember, you were guided mainly by maintenance cost. If repair bills on any rig got out of hand, out it went. But that was when jobs where smaller, profit margins bigger: when *production* wasn't so all-important. Today, smart operators judge the obsolescence of a machine not so much by what it costs to *maintain*, but by what it can or cannot do in the way of *production*.



Main reason Fullpak bowls load faster is their low, wide design. Dirt flows in almost on a straight line. Curved tailgate top, crowned side-sheets roll dirt into all corners. You get better "boil", bigger payload. Big B 'Pull*, shown here, is available with choice of 3 engines (to 335 hp), and step-gear or torque-converter power-shift transmission.

A loser . . . yet still in "good shape"

That's why, nowadays, a scraper can be a liability and ripe for replacement even though it still functions smoothly. Cost-conscious contractors realize that no matter *how* maintenance-free a scraper, if it's not moving maximum yardage, at *lowest-net-cost-per-yard*, it's just too expensive.

Consider, for instance, an imaginary project in which a scraper is completing a load-haul-and-spread cycle in 5.55 minutes . . . for 9 cycles every 50-minute hour. Assume, too, that it averages 11 pay-yards each trip. You're moving 99 yards an hour with that scraper . . . and if you've bid your job right, you're probably making money.

Compare with bigger, speedier unit

Now, however, look at what a scraper that loads, hauls, and spreads *faster* . . . and that has a bigger payload capacity . . . can do. If it knocks off just a half minute per cycle, it will complete 9.9 cycles an hour. And if it also packs in just 2 more yards per load, you're moving not 99 yards an hour, but 128.7. At the national average rate of about 40¢ a yard, you'd be earning $11.88 more per scraper per hour!

Project those figures, and each of your faster, bigger scrapers would be earning for you $118 more every 10-hour day . . . $649 more every 5½-day week. In other words, the smaller, slower, old-fashioned scraper is *costing* you $649 a week to keep on the line! Not in maintenance costs . . . not in ownership or operating costs . . . but in reduced income *potential*.

That's the kind of scraper that needs replacing — no matter *what* shape it's in.

Move more yards faster . . .

That's why fast-traveling Tournapulls®, with easy-loading *big*-capacity Fullpak® scrapers, are replacing so many earthmoving tools . . . both old and new . . . around the nation. Tournapulls will *not*, of course, move 128.7 yds. an hour on every job, in every condition — the figures quoted above are based on a hypothetical situation — but what they *will* do, on every job, is to move *more* yards *faster* . . . at the *lowest-net-cost-per-yard*.

Ask for full details, and a demonstration of Tournapull . . . available in 9, 18, and 27-yd. heaped capacities.

"Handyman" scraper of Tournapull line is 138 hp, 9-yd. "D". Like all 'Pulls, it has exclusive power-transfer differential, to keep you working in mud and slippery conditions. When one wheel starts to slip, this differential transfers torque-power to wheel on solid footing, keeps you moving. With 90° kingpin steer, you can "duck walk" out of trouble, too . . . turning prime-mover side to side until you're on good footing again. *Trademark P-1732-DC-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

For more facts, use Request Card at page 18 and circle No. 290

avoid legal pitfalls

eral contractor liable for failure to secure the insurance.

The majority of the court thought that such intention of the Commonwealth and the general contractor was indicated by the fact that another provision of the contract specially gave material men and laborers a right on the contractor's bond, thereby showing "that when the parties intended to create third-party beneficiaries they manifested such intention in express and unambiguous terms."

Sewer project accident

THE PROBLEM: *A city, for which a sewer line was being constructed, directed the contractor not to cut through a bulkhead until ordered to do so. The direction was violated and an employee of the contractor was injured by a fluid that flowed through the opening. Was the city liable?*

THE ANSWER: No. (Steeley v. City of New York, 164 N. Y. Supp. 2d 867, decided by the New York Supreme Court, Appellate Division, Second Department. This set aside a contrary ruling by a lower court, 157 N. Y. Supp. 2d 734.)

The court said that the city was not liable because an engineer employed by it was present but made no objection when the bulkhead was cut; there was no evidence that he had any authority to interfere.

Contractor is liable for use and sales taxes

THE PROBLEM: *Bidding specifications covering construction of a municipal gas system or for the furnishing of necessary pipe, required that the price bid include "all federal, state, and local taxes payable during the time of contract on materials, equipment, or labor". Plaintiff was awarded a contract to furnish the pipe needed on the project. Did the city, in settling with plaintiff, rightfully deduct from the contract price the state-use taxes covering pipe?*

THE ANSWER: Yes. (McJunkin Corporation v. City of Orangeburg, S. C., 238 Fed. 2d 528, decided by the United States Court of Appeals, Fourth Circuit.)

The court said that an addendum to the contract was not so worded as to obviate the provision of the original specifications quoted here. The court reasoned that the city, in calling for bids, could require submission upon a uniform basis calling either for inclusion or exclusion of particular taxes, to make the bidding fair and to protect the city against having to pay the taxes—once to the contractor and once to the taxing authority. To permit plaintiff to collect the full contract price, without deduction of the use taxes, would also have been unfair because a competing bid included taxes and would have been lower than plaintiff's if plaintiff's did not include taxes.

Government's liability for damaging work

THE PROBLEM: *A government contract specified that all work and material covered by progress payments should become government property, but the contractor must restore damaged material or work. Allegedly the work was negligently damaged by the government. The government refused to allow the contractor's claim on account of the damage, because the damage occurred before the work was inspected and accepted, although it was covered by progress payments. The contractor's liability insurer covered the loss and sued the government under the Federal Tort Claims Act—a statute which permits the government to be sued for damages caused by its negligence. Assuming that the insurer could prove that the government's negligence did cause the loss, would the insurer be entitled to judgment?*

THE ANSWER: Yes. (Automobile Insurance Company of Hartford v. United States, 144 Fed. Supp. 454, decided by the United States District Court of North Carolina, Eastern District.)

The court said that the contract provisions were intended to protect the government against loss through damage to work during progress for which it had paid, only when the damage resulted from causes beyond its control. If the cause was within its control, it became liable to the contractor or to his surety or insurer.

Architect injured when ladder slipped

THE PROBLEM: *A school district's supervising architect was injured by slipping off a ladder which he was climbing to inspect the roof of a building under construction. The contractor had placed the ladder and was sued for damages resulting from the architect's fall. The injured man admitted that he did not check whether the standards of the ladder were set level and solidly on the ground and against the wall at the top. Nor did he step from the top of the ladder upon a 3-foot canopy and then over*

Here's why TWINS e

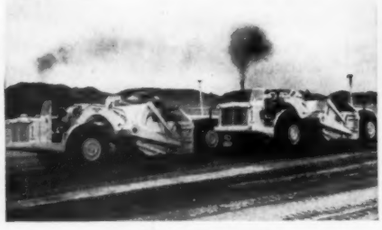
Euclid Twin-Power Protects Your Profit Margin

21% faster than single engine units
In loading ripped and shot rock for the 1,300,000 yd. U. S. Highway job at Meacham, Oregon, two "Twins" saved better than 6 cents a yard over single engine rigs for Rogers Construction Co.

"Couldn't be done with scrapers"
In Delaware, Barney Zinick tackled a million yard riverbank stabilization and bridge approach project with 5 Euclid "Twins"—moved 4000 yds. per shift over a 3000' haul—although the Corps of Engineers figured it would be a dragline job.

Handles complete road job
The first rubber-tired scraper for R. L. Eatherly Construction Co. of Nashville was a Euclid "Twin". In 4 weeks this one rig handled all earthmoving, grading and surfacing (50,000 yds.) for a state road connecting U. S. 70 with Oak Ridge.

Only "Twins" could operate
Heavy rain did not stop "Twins" from loading clay and sand for L.W. Edison's 2 million yard expressway project at Grand Rapids, Michigan. This contractor rates the "Twin" as the most efficient scraper available today.



Averaged 350 yds. per hour
Bidding on "Twin" performance, N. A. Degerstrom beat 23 contractors and wet weather . . . moved 14,500 yds. in 31 working hours on one section of the 900,000 yd. job near Davenport, Washington.

Self-load at 10,000 ft. elevation
Two "Twins" are stripping overburden at J. R. Simplot Company's phosphate mine in Idaho. They self-load, climb 50-60% adverse grades on the return, and move as much as 300 pay yards per 50 minute hour

a parapet upon the roof, the usual way. Instead, while standing on the second rung from the top, he grasped the parapet with his left hand and placed his right knee on the canopy. The ladder slipped to the left, he lost hold on the parapet and fell to the ground. Was the contractor liable?

THE ANSWER: No. (Pehrson v. C. B. Lauch Construction Co., 237 Fed. 2d 269, decided by the United States Court of Appeals, Ninth Circuit.)

The court said that because the architect was not an employee of the contractor he could claim no benefits under the Idaho Minimum Safety Standards provision applicable to the construction industry. Those provisions are limited to the safety of employees.

Removal of trees an extra

THE PROBLEM: *A state throughway contractor protested a requirement by the contracting authority that trees and stumps be cleared, grubbed and removed as part of excavation called for by the contract. The authority relied upon a specification to the effect that trees, shown on the drawings to be removed or which would interfere with the contract work, should be removed. The contractor relied on another specification: "The present grade elevations shown are as they existed before the clearing was done, and are given for the convenience of the contractor to aid him in arriving at the quantities of excavations, grading, and backfilling."*

Did the latter specification amount to a representation by the authority to the contractor that someone else was to remove the trees preparatory to excavation by the contractor? And did the later requirement by the authority that the contractor do that work constitute such breach of the contract as to entitle the contractor to extra pay on doing the work under protest?

THE ANSWER: Yes. (Hartnett Company, Inc. v. New York State Thruway Authority, 155 N. Y. Supp. 2d 100, decided by the New York Court of Claims.)

The court reasoned: (1) The contract was worded by the state, not by the contractor. Under a general rule of law, if there was doubt as to its meaning, the doubt should be in favor of the contractor. (2) The basic contract dealt with other sites, as well as the particular one. As to the other sites, trees were cleared in advance of the contractor's entry, in recognition that it was not a part of the contractor's undertaking.

The court rejected argument that if the contractor had sent a representative to the site before bidding the man would have seen the trees. The contractor had a right to rely upon the grades and elevations shown by the drawings.

Nor did the contractor waive his rights by removing the trees after protesting that he was not required to do so. The Court of Claims cited a decision by the New York Court of Appeals (Borough Construction Co. v. City of New York, 200 N. Y. 149, 157, 93 N. E. 480, 483) to the effect that where a municipal representative, without collusion and against the contractor's opposition, requires the latter to do something as covered by his contract, and the question whether the thing is embraced within the contract is fairly debatable, the contractor may comply with the demand under protest and recover damages or extra pay even if it turns out that he was right and that the thing was not covered by his contract.

Equipment buying contract

THE PROBLEM: *A concrete mixer was sold under a conditional sales contract which provided: "Any and all net monies acquired from the truck and mixer applies to the purchase price." Did that mean that the buyer should not be liable for a greater sum than derived from use of the equipment?*

THE ANSWER: No. (Jones v. Cox, 301 S. W. 2d 12, decided by the Arkansas Supreme Court.)

Liability for damage to abutting property

THE PROBLEMS: *In constructing street improvements, the contractor's bulldozer ruptured a gas pipe line. In a resulting fire an adjacent house and its furnishings were destroyed. The contract required the contractors to make good the house owners' loss. (1) Under the wording of the contract were the owners entitled to sue the contractors for damages? (2) If so, were the owners entitled to collect the replacement cost, without deduction for depreciation of the house and furnishings? (3) Were they entitled to reimbursement for loss of the rental value of the house during the time required to rebuild, regardless of whether it was rebuilt or not? (4) Were the contractors entitled to a reduction of the damages by the amount that the owners of the destroyed property were entitled to collect on fire insurance they carried?*

THE ANSWERS: Yes. (Anderson v. Rexroad, 306 Pac. 2d 137, decided by the Kansas Supreme Court.)

The case illustrates the point that a construction contract may be so worded as to give third parties beneficial rights even though they are not, formally, parties to the agreement.

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Working with single engine scrapers at the Jackson, Alabama Lock and Dam project, a "Twin" bulled through adverse material that delayed other scrapers, and moved almost third more payloads.

42 "Twins" on Toll Road
On the Illinois Toll Road where bidding competition was keen, eight contractors have put a total of 42 "Twins" to work. "Twin" performance is helping overcome wet weather conditions that stop other scrapers.

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For expansion of Vancouver Island airport runways, Hassel Bros. Ltd. used two "Twins" . . . overcame weather delays and adverse conditions. . . . moved 7,000 yds. in a 10 hour shift, self-loading clay and gravel.

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A Koehring 405 with 60-foot boom lifts a 10-ton plate girder section into place for the 664-foot bridge carrying U. S. 66 across the Gasconade River near Lebanon, Mo.

Cranes do specific jobs

Two cranes help place big plate girders for 664-foot bridge; largest section lifted is 93.5 feet long and weighs 17 tons

Two cranes teamed up to lift the big plate-girder sections of a 6-span bridge on U.S. 66 near Lebanon, Mo.

The two Koehrings, backed by a fast-moving construction crew, set the steel in less than a month's time for the 664-foot, 2-lane bridge. The largest of the girder sections lifted by the cranes was 93.5 feet long and weighed 17 tons.

Built by Maxwell Bridge Co., Inc., Columbus, Kans., the bridge carries westbound traffic across the Gasconade River. The bridge ties a new 10-mile section of 2-lane highway built generally north of old U.S. 66. The old highway will carry eastbound traffic until the relocation is complete and an additional roadway parallels the new construction. U.S. 66, which runs southwesterly across Missouri from St. Louis to Joplin, is a part of the new Interstate System.

Designed by the Missouri State Highway Department, the bridge has four continuous plate-girder spans, and two hinged plate-girder spans that are connected to the abutments. The spans of the 664-foot-long bridge vary in length from 57 to 150 feet. Four girders support a 28-foot reinforced-concrete roadway with 22-inch curbs on either side. The curbs carry a steel guardrail built of vertical I-beams and horizontal channels.

Substructure

Most bridges are built with two abutments, but Maxwell's contract called for the construction of four. The two extra ones will eventually become part of the substructure of a bridge planned to parallel this one. On one side of the river, the footings of the reinforced abutments rest on rock. On the other side, the two abutments are supported by Armco poured-in-place piles.

During normal flows of the river, only one of the five reinforced-concrete piers is surrounded by water. In excavating to rock for all five of the footings, the contractor drove cofferdams of interlocking sheet piling. Concrete for the footing of the river pier had to be placed by tremie in about four feet of water. Wood forms were used to build the 3-column piers.

The circular columns, on a ½ to 12-inch batter, were connected by a 15-inch web.

Structural steel

The 913,750 pounds of structural steel, fabricated by Stupp Brothers Bridge & Iron Co., St. Louis, was shipped by rail to the town of Richmond. Two American motor cranes unloaded the steel onto the trailers of GMC 630 trucks for the 8-mile haul.

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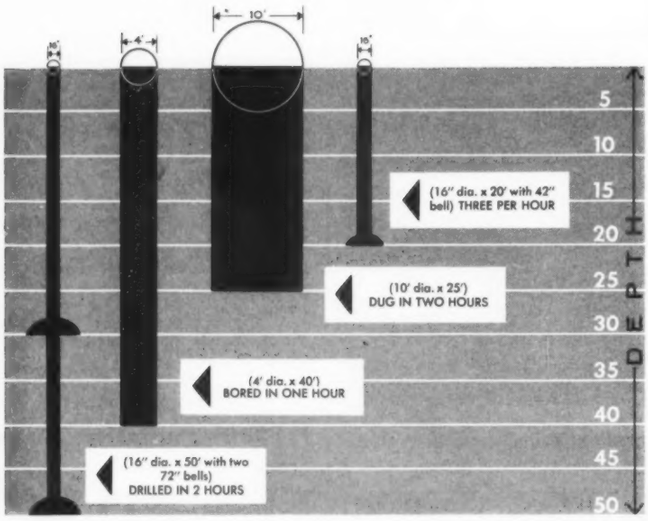

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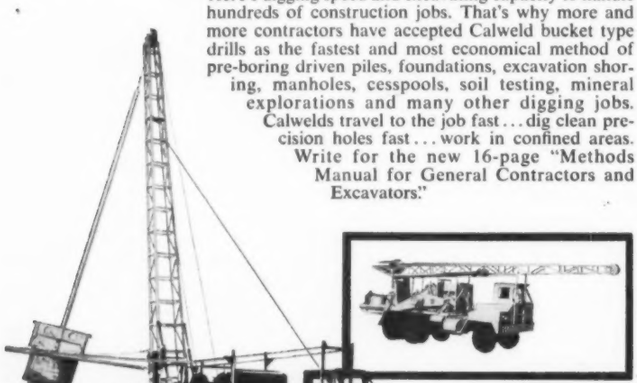

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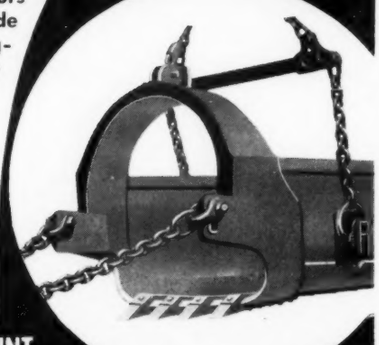

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jobo speed steelwork on bridge

With the girder fully raised, the 405 is joined by a Koehring 304, which holds the member so that crewmen can make the splice. In the background is the old bridge across the river.

The girder is in final position, and crews work swiftly to bolt the splice plates together. Bolted connections are made with an Ingersoll-Rand impact wrench.

At the project, the big girder sections were handled by a Koehring 304 and a Koehring 405 crane. The cranes worked from wood mats on the ground beneath the bridge, or at times from a gravel ramp built out into the river. Since the long girder sections were limber as well as heavy, two cranes were generally used to lift each section.

Working closely together, the two cranes had to jockey a big girder from the storage area near the bridge to a point directly under the girder's final position in the superstructure. Using four-part lines, the two Koehring rigs carefully lifted the girder to within a hair of lining in with the abutting girder section. Steelworkers then rammed home their drift pins and set erection bolts to hold the overlapping web of the plate-girder sections.

Splice plates and high-tensile steel bolts were used to make the permanent connections between the girder sections. To tighten the bolts to 335 pounds torque pressure, the steelworkers used an Ingersoll-Rand impact wrench powered by an Ingersoll-Rand 105-cfm compressor.

The plate girders were not placed directly on the steel rockers, or shoes, because the bridge was on a 2.5 per cent grade and the girders would have tended to roll forward on the rockers during construction. To gain stability, the contractor set the girders on timbers that rested on the pier cap. After the spans had been completed, the girders were jacked up by Simplex 30-ton hydraulic jacks and the rockers were bolted in place.

Falsework

Each of three spans required one falsework bent to hold the girders

(Continued on next page)

Weldynamics

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Cut your construction costs with a new Shield-Arc welder

Shield-Arc 200 (Type K-6090) engine-driven welder. 200 ampere welding current, 110 volt DC auxiliary current.

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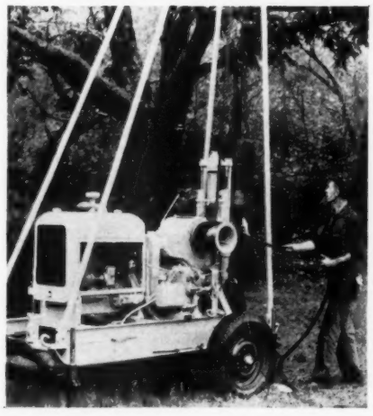

Acker gives you more for your money because the essential accessories that you'll want and need are included right in the basic models. For instance, the dual-purpose rig shown in operation on the Penn-Can Highway is ready to operate anywhere! It's completely self-contained with its own power plant, built-in pump, cargo-type hoisting winch, full 360° operating hydraulic feed head and dozens of other useful features. This particular derrick equipped rig was designed to operate from the trailer, or slid-off and used on its skid base.

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The cranes, with the Koehring 405 on the far end, hold a 92-foot girder section as crews clean out the bolt holes. Air is supplied by the 105-cfm compressor.

(*Continued from preceding page*)

during erection. Two of these heavy timber bents rested on mud sills on the river bank. The third bent rested on eight timber piles driven to rock in the river bottom.

Concrete for the 7-inch reinforced-concrete deck was supplied by Winslow batch plants, each with Jaeger ½-yard mixers, on either side of the river. The concrete was bucketed by the Koehring cranes to buggies on the deck. These were wheeled to the point of placement. After the concrete was leveled by a vibrating screed, longitudinal floating was done and a broom finish applied.

Personnel

Allen Beggs, superintendent for Maxwell Bridge, pushed work along on the superstructure, and Frank Cox superintended the work on the substructure.

For the Missouri Highway Department, G. G. McKinney was the resident engineer. W. M. McNabb was the engineer-inspector on the bridge.

THE END

Book reports conference on prestressed concrete

The proceedings of the World Conference on Prestressed Concrete, held by the University of California with the cooperation of numerous technical organizations, have been printed in a hard-cover book of more than 600 pages.

Containing 64 papers from engineers all over the world, the Proceedings represent an up-to-date report on available knowledge and experience on prestressed concrete. Papers on materials and techniques take up such subjects as post-tensioning systems and new grouting methods in Germany; prestressing steel under high stress; and early high-strength concrete for prestressing. The Lake Pontchartrain and Illinois Toll Highway bridges are discussed as examples of prestressed-concrete bridge construction, and progress in the use of concentrated tendons for long span prestressed-concrete bridges is described. The fire resistance of prestressed concrete, potentialities for long span prestressed-concrete structures in the U.S.A., and a review of prestressed-concrete construction in Poland are among the subjects pertaining to prestressed buildings.

There are papers on prestressed airfield pavements, piling and marine structures, dams and masts. Research in the use of calcium chloride in prestressed concrete is described, and reports are made on research at the University of Illinois and at Lehigh University. Additional topics discussed in the area of research and analysis are experiments on loss of tension caused by cable friction; design and proof test of a prestressed-concrete inverted tee-beam; and new developments in self-stressed concrete.

The manufacture of prestressed-concrete units is discussed under such headings as pretensioning plants and production methods in the U.S.A., and sectional prestressed-concrete beams.

Priced at $10 a copy, including postage, the Proceedings may be obtained from World Conference on Prestressed Concrete, Inc., Room 216, 417 Market St., San Francisco 5, Calif.

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Look for FUNK'S REVERS-O-MATIC in any moving equipment you buy. Speed and direction of travel — forward and reverse or lift and lower — can be easily controlled by ONE LEVER or foot pedals. Torque converter prevents stall, eliminates shock and multiplies engine torque more than 200% to broaden h.p. range. Insist on FUNK equipped machines.

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Raymond Concrete Pile plans name change to reflect company status

Raymond Concrete Pile Co., New York, N. Y., known primarily as a foundation specialist, will change its name to Raymond International, Inc., if approval is voted by stockholders at the annual meeting next month. The new name will reflect Raymond's status abroad as a general contractor, undertaking all types of construction.

Raymond has wholly owned subsidiaries operating in 25 countries on nearly 400 contracts. Among its major projects is the construction of Brasilia, the new capital city of Brazil. Raymond is the prime contractor on this job. The company is also building a 300-mile highway in Thailand, and is sponsoring the $350 million military base construction in Spain. Other projects include a $10 million public works program in Liberia and a $35 million grain silo job in Turkey.

Founded in 1897 by Alfred A. Raymond, inventor of the shell-encased cast-in-place concrete pile, the company now operates 50 district offices and equipment and storage depots throughout the world. It has 22 separate subsidiary and affiliated companies. One phase of its operations is the Gow Division, which offers soil investigation services on a world-wide basis. Another is the Centriline Corp., which lines pipelines in place with cement mortar.

Raymond Concrete Pile Co. will operate as a division of the parent company, offering all of its present services—including foundation piling, underpinning, and soil investigation.

Euclid service school holds extra classes

Of special interest to operators and mechanics are the extra classes on the servicing of Euclid equipment, scheduled for the spring session at the factory school in Cleveland, Ohio.

Training is given, in both one and two-week classes, on all Euclid models, with special emphasis on preventive maintenance, trouble shooting, and overhaul procedures.

Service personnel interested in attending may contact their local Euclid dealer, or write to the Service Training Section, Euclid Division, GMC, Cleveland 17, Ohio.

Farmers conserve soil, cut cost of road-upkeep

Farmers practicing soil conservation in York County, Pennsylvania, are saving taxpayers almost $500 a mile every year on road-maintenance costs.

Two similar stretches of road were studied for effects of annual sediment and erosion damage. Costs of removing mud and repairing road banks and culverts along an ordinary mile of rural road averaged $512. A mile through York County's soil-conservation farms costs only $39 to maintain.

The saving was brought about, it is believed, because of the well-grassed, wood-covered slopes of the conservation farms and the planned water-disposal systems which prevent runaway soil and water from damaging nearby roadways.

The study of the two roads was made by the York County Highway Department, which noted the savings in the soil-conservation area.

Thruway makes new record

Gross revenues on the New York State Thruway in 1957 amounted to a record total of $31,064,076. The best safety record since 1954 was also chalked up: the fatality rate was 1.94 persons for each 100 million vehicle miles.

Honor system pays off on Garden State Parkway

The honor system, instituted in 1955 by the New Jersey Highway Authority on the Garden State Parkway, proves two things: that motorists can be trusted to pay their tolls; and that the system is an effective economy measure.

Under this procedure, motorists are entirely on their own at toll booths; since no attendants are present, motorists who lack the right change for the hopper can use pre-addressed envelopes left at the booths to mail back their payments. Unlike automatic toll operations, under which payments are regulated by a light-and-alarm control system and attendants are present in nearby booths, the honor system depends for its success solely on the honesty of the motorists themselves.

Results have been rewarding. For the third straight year, records show that 70 per cent of the public have paid up, with $2,000 in toll payments for 1957 mailed in the pre-addressed envelopes.

The system, used at ramp toll areas where limited traffic cannot cover payroll costs for attendants, has paid its own way.

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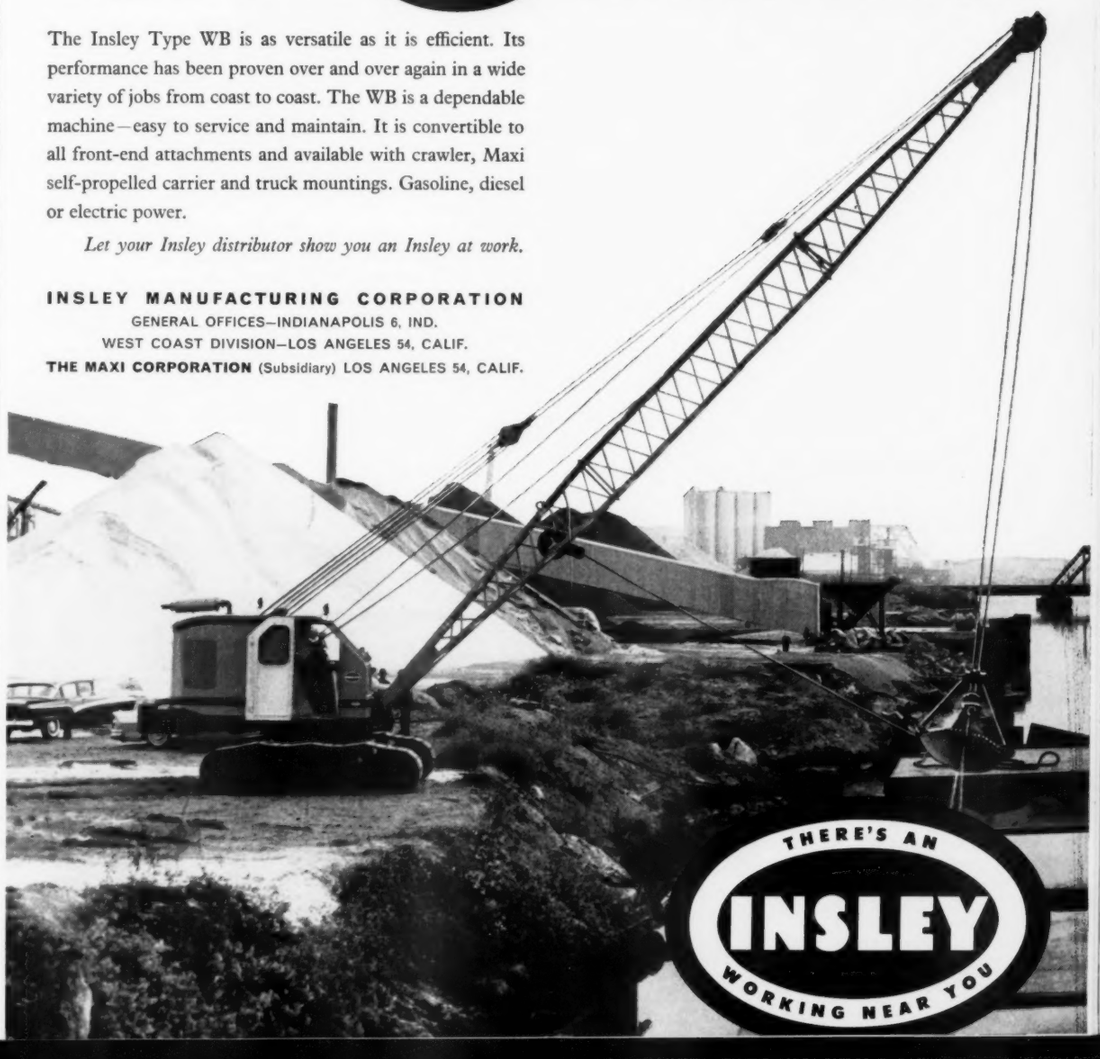

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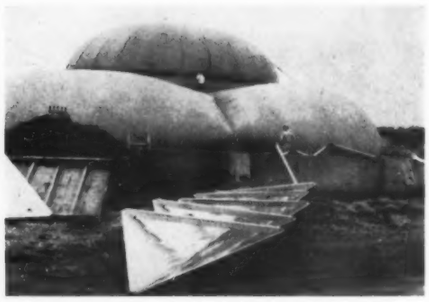

The bags are inflated in a test before erection starts on the geodesic dome that will become the Abilene, Kans., factory of Fi-Fo Conveyor Co. The small bag is inflated as it rests on the partially inflated large bag.

Balloons help erect geodesic dome for factory

Geodesic domes are not new any more, but there is something new in the way they can be constructed. The one at Abilene, Kans., used as a factory for Fi-Fo Conveyor Co., a subsidiary of Vacu-Blast Co., Belmont, Calif., was built with the help of two big balloons.

Industrial Covers, Inc., of San Francisco, had the job of designing and fabricating the balloons to erect this dome, which consists of 575 diamond-shaped panels, forming a dome 145 feet in diameter and 49 feet high.

Up to this time, geodesic domes have been erected with the aid of gin poles or rigging masts (See "Big geodesic dome erected from top down", C&E, Nov. 1956, pg. 42, and "Rigging mast erects aluminum dome", C&E, March 1957, pg. 42). But these methods required cables and winches to provide lift, plus adequate footings and room for guying.

The new technique has several factors in its favor. One of them is that less room is required to erect domes; as a result they can be constructed atop existing buildings. Other advantages of the method are less need for skilled labor, fast erection time, and the easier handling of the pneumatic bags as compared with steel towers. The bags, with a combined weight of about 4,500 pounds, are easy to assemble and disassemble, and can be packed into an area equivalent to a 1½-ton truck bed. The method might even be applied to other types of construction, including large steel gas tanks which could be assembled with all welding done at ground level.

Use two balloons

Like other geodesic domes, the one at Abilene was assembled from the top down. Erection time was 22 hours with a 38-man crew. Industrial Covers designed two pneumatic bags of different shapes and sizes to handle the job of raising the 39,000-pound dome. The small bag is in two sections, the large bag in three. Their combined weight is about 4,500 pounds, but the heaviest single section is only 1,500 pounds.

The upper bag, 50 feet in diameter by 24 inches high, was inflated first to contact the exact center of the dome. After the center section of the dome had been completed, it was raised so that more triangular panels could be placed to form another ring for the dome. At no time did the bags interfere with work being done by men securing panel terminals on the under side of the dome. When the dome reached a specified diameter, the large bag was inflated to lift the structure higher. The small bag rested in the "nest" of the larger tub-shaped bag, which is 95 feet in diameter, 33 feet high in the center, and 46 feet high at the shoulders.

Erecting the dome

Twenty Griphoists were used to control the lifting operation. These are manually operated hoisting and pulling devices, using single line wire

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ROPER PUMP
WITH
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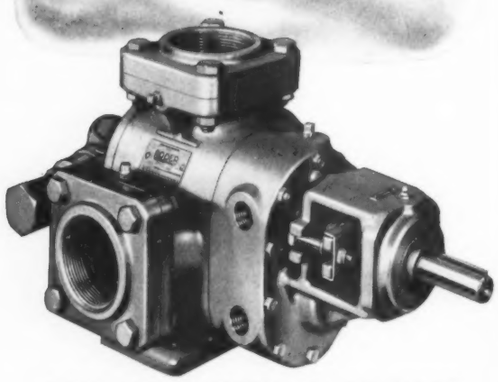

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- Four ports in steam chest for installation convenience.
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For more facts, circle No. 303

The first panels of the geodesic dome are set on the partially inflated small bag. Workmen stay on the ground at all times as they add panels to the perimeter while the bag provides lift.

Here the dome is almost completed. The points of these panels will rest on 3 to 6-foot-high piers which form the anchoring foundation. Air is supplied to the bags from a bank of three centrifugal blowers.

rope and capable of unlimited cable travel. The bags proved easy to handle. Made of more than 4,200 square yards of Du Pont Hypalon-coated nylon, which weighs 14 ounces per square yard, they had a tough, dry surface that did not "hang up" on protrusions and was exceptionally resistant to abrasion. The upward movement of the dome showed no evidence of "roll" or other movement.

As the structure rose, the shoulders of the larger bag bore against a radius point that provided the necessary support for the dome. The nested arrangement of the bags balanced their respective bearing stresses against the structure. Together, the bags proved strong enough to support the 39,000-pound structure and to stand up against an additional 60,000 pounds of wind load, counter force of tie-down, and other factors.

Inflating bags

Both bags were inflated by a bank of three centrifugal blowers. Each blower had a capacity of 4,450 cfm at 4 inches H_2O gage. One supplied air to the small bag through an 18-inch duct. This blower was equipped with a vertical sliding gate so that the volume of air going into the bag could be regulated. The other two blowers were coupled to a "Y" duct that had separate gates on each leg.

Although the bags were designed to operate under a pressure of 20 pounds per square foot, pressure was kept at 15.5 pounds per square foot on the small bag and 7.75 pounds per square foot on the large bag. This was enough to make the bags exert an even pressure against all areas of the dome.

During the erection period, personnel were able to enter the pressurized area at any time to inspect areas of contact against the dome and make repairs. Floodlights were installed inside so that visibility was good, and pressure was so slight that it was not noticeable to workmen.

Repairs are no problem with this method. The material in the bags can be cemented as well as sewn, and is strong enough to prevent a cut from being extended by internal pressure. Even if the bags have a cut 5 or 6 feet long, blower capacity can be regulated to offset loss of air through the hole while repairs are made.

THE END

Wake Up and Read
is the theme for America's first National Library Week, March 16–22.

Someone is going to get taken for a ride

A Materials Interchange Plan can make it happen sooner—and make it a happy one . . . with 65 million cars on the highway—20 million more in 10 years—someone is getting taken for a ride . . . every minute of every day. Let's make it a happy ride. Current highway construction programs can do it. A *Materials Interchange* design and specification plan that includes Asphalt can help grandma get taken for a pleasant ride sooner.

Here's what at least one Midwest state is doing about it: Highway authorities have drawn plans for alternate types of construction. Materials available at the time of construction will be used. No time is lost in this construction program. No experienced engineering manpower is lost rewriting specs and redesigning projects.

Make this your plan. Employ *Materials Interchangeability* so that roads under your authority may be built from materials available at time of construction. Include Asphalt in your construction planning.

Remember these facts: Standard Oil produces Asphalt at four convenient Midwest locations. Tank car and tank truck deliveries are made to you from the Standard Oil refinery nearest your job. Technical Service on Asphalt for highway construction is provided by Asphalt construction specialists who work out of 23 Standard Oil offices all over the 15 Midwest and Rocky Mountain states. Standard Oil has a record of taking care of its customers demonstrated by its delivery on contracts in times of short supply as well as when materials are plentiful.

Get more facts about STANDARD Asphalt from the Standard Oil office nearest you. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

STANDARD

STANDARD OIL COMPANY
(Indiana)

For more facts, circle No. 265→

"Hey, watch what you're doing — that pipe costs money!"

Microwave-mobile radio system to coordinate operations on Illinois Toll Highway

One of the nation's largest microwave-mobile radio systems for highway communications is being installed on the 187-mile Illinois Toll Highway which comprises the Tri-State Tollway, the North Illinois Tollway, and the East-West Tollway. The $1 million installation by Radio Corp. of America will provide microwave, mobile radio, and teletypewriter facilities for police, maintenance, toll-collection, and general administrative communications.

A special feature of the installation will be the use of two microwave tone channels for automatic transmission of toll-collecting data. When a motorist pays a toll, the fee will be recorded automatically on paper tape. At regular intervals during the day, the tape information at each toll plaza will be microwaved to a computer at the main administration building at Hinsdale, 15 miles west of Chicago. The computer will convert the data into a detailed, up-to-the-minute printed report of traffic and toll collections throughout the entire road system.

The system, when completed in August, will provide 29 voice, teletype, and tone channels to link all major

BIG PROJECTS PROVE IT!

Firestones beat downtime delays!

From the Los Angeles Freeways to the Connecticut Turnpike, Firestones lead the way in beating breakdown losses. Firestone Rock Grip Tires, with S/F (safety-fortified) Nylon, roll longer with less downtime than any other tire! Two great tread designs match these off-the-highway tires to *any* job and eliminate tire changes. You get the *flotation and traction* you need in loose earth and wet going. You get S/F Nylon's armored protection for hauls over splintered shale and knife-edged rubble. Firestone tires defy cuts and slugging impacts like no other tires made. Ask your Firestone Sales Engineer about these *tubed* or *tubeless* heavy-duty tires. Call him today at your local Firestone Dealer or Store.

ROCK GRIP WIDE BASE ROCK GRIP

Firestone

BETTER RUBBER FROM START TO FINISH

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For more facts, use Request Card at page 18 and circle No. 304

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GINEERS

tollway installations and vehicles. Radio facilities for the remote, automatic accounting of collections at all toll plazas will be installed in the administration building.

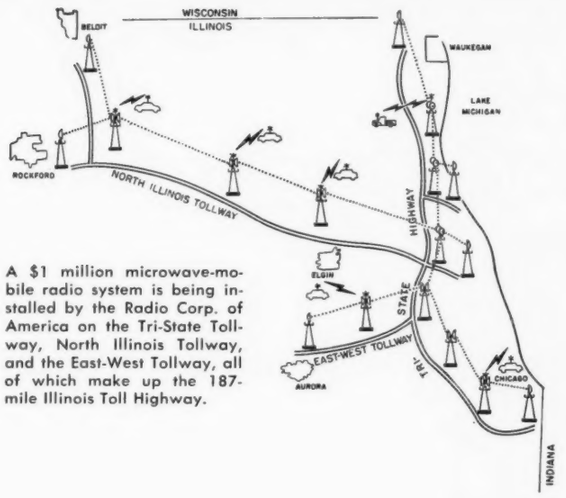
Interlinked radio network

Three RCA microwave systems and two ultra-high-frequency mobile radio systems will be used to establish a radio network linking the administration building, 20 toll plazas, 8 maintenance centers, tollway patrol and maintenance cars, and various state police district headquarters.

Major elements of the radio network include 11 master microwave stations, using RCA CW-20AW equipment, which will operate as the backbone of the over-all communications network. There will be 15 microwave link stations, operating through the 11 master stations, to provide branch circuits for interconnecting communication among all toll plazas, district police headquarters, and highway patrol vehicles.

Twelve UHF radio base stations will be installed in pairs at five strategically located maintenance centers and one key toll plaza. At each location, one base station will be used for police mobile-radio communication, the other for mobile communication among maintenance vehicles.

About 150 RCA Carfone 450-megacycle mobile radio units will be installed in highway patrol and maintenance vehicles. A microwave radio terminal station and central control equipment for all microwave and UHF circuits will be located at the administration building. THE END



A $1 million microwave-mobile radio system is being installed by the Radio Corp. of America on the Tri-State Tollway, North Illinois Tollway, and the East-West Tollway, all of which make up the 187-mile Illinois Toll Highway.

Willys Jeep units to be made in Australia

Willys Motors Australia Pty., Ltd., is the new company formed to manufacture the Willys line of 4-wheel drive Jeep vehicles in Australia. The company has an authorized capital of $2,225,000, to be owned one-half by Willys Motors, Inc., Toledo, Ohio, and one-half by Willys' Australian distributors.

Soiltest elects Brush

Edward E. Brush has been elected vice president of sales of Soiltest, Inc., Chicago, Ill. Brush was formerly a sales manager for the firm, which produces engineering testing equipment for soils, concrete, and asphalt.

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For more facts, circle No. 306

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ROAD BUILDERS PLANT

High speed production, low operating cost . . . ONE MAN OPERATION . . . Completely automatic . . . and by far the MOST PORTABLE PLANT ever built! No matter how small or how big the paving job may be — from one dual drum paver to four, The BUTLER TX4 sets new batching records. Just expand the TX4 as your jobs require. The diagrams below show you how easy and simple it is. Yes — with the TX4 your costs are so low you can bid any job successfully — with a far bigger profit.

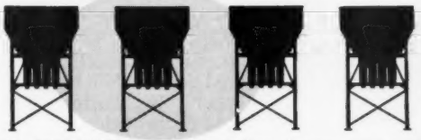
A ONE OR TWO PAVER JOB...

FOR ONE OR TWO PAVERS. Two bins, 2 compartments in each for 2 sizes of stone, cement and sand. Two batchers for each material.

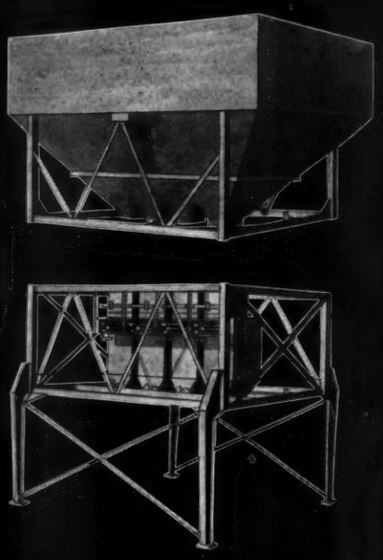
A THREE PAVER JOB...

FOR THREE PAVERS. 4 bins for 2 sizes of stone, cement and sand. Three batchers for each material.

A FOUR PAVER JOB...



FOR FOUR PAVERS. 4 bins for 2 sizes of stone, cement and sand. Four batchers for each material.



All bin sections ship in one piece. Batcher section also ships as a unit with bracing, wiring, air piping and controls in-place ready for quick "plug-in" hook up. Hinged support columns swing into place when batcher section is lifted. Dismantling and re-erection in hours instead of days.

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BUTLER BIN COMPANY

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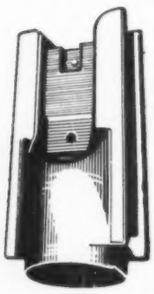
WAUKESHA, WISCONSIN

For more facts, use Request Card at page 18 and circle No. 307

DEPENDABLE SEMI-STEEL PILE HAMMERS



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For more facts, use Request Card at page 18 and circle No. 308

Surveying washington

Cutbacks on construction programs involving federal construction grants, as proposed by the President, face rough going in Congress. Whatever the merits of the programs, they must contend with the fact that an election is coming up and many lawmakers hardly view domestic economy programs as tickets to political success.

Hearings have been held on the Administration's bid to pare down school-construction aid in some areas. On the record is heavy opposition—some from a group of local school superintendents faced with the problem of coping with swollen enrollments.

The Administration's new budget for fiscal 1959 asks $130.5 million for building and operating schools in areas affected by federal activities. This is $95 million less than the sum for the present budget. Further, the White House wants to terminate all federal aid going toward the building and operating of schools in places where parents of the students live off of federal property on taxable ground. This would limit the impact-aid program to school construction for children whose parents both work and live on government installations.

The elimination of federal assistance in construction of waste-treatment facilities and the whittling down of grants for hospital building were also proposed by the President.

Under his budget recommendation, federal sharing in the costs of erecting waste-disposal plants would continue through fiscal 1959 and then be stopped. Some $45 million was budgeted for the program in fiscal 1959, bringing total appropriations to an estimated $140 million since the program's inception in 1956.

An appropriations slash in hospital-construction aid—from the present $121.2 million to $75 million—was also asked. The Chief Executive said this grant program, authorized in 1947, has met the "most urgent" postwar shortages and should now be applied only where absolutely necessary.

Another controversial point, and one which has produced loud howls from some Westerners, is the '59 budget's ban on new public works starts by the U. S. Army Corps of Engineers or Reclamation Bureau. The President, explaining why he did not provide funds for additional power, irrigation, and flood-control projects, said there is already an "extremely high level of commitments" in this area. He noted that the Engineers and Bureau now have 407 projects worth $4.5 billion under construction. Working on this backlog alone, he said, will take heavy expenditures in 1959 and 1960.

What the 1959 budget omitted is as significant as what it included. There was no mention of legislation for sizable federal aid for school construction on a national scale, such as the Administration endorsed the past two years. This idea was dropped in favor of a broad-scale program of federal help in improving education in science and mathematics.

The switch was a concession to the new urgencies of the space age, plus the political reality that a big classroom building bill stands little chance.

Reaction to White House economy cuts in the non-defense area was varied. Typical of the view of those on one side was the Council of State Chambers of Commerce. The organization said it found little in the new

How Dodge saves you money by matching your truck to your needs

Dodge medium- and heavy-duty trucks have always been built from a wide range of "Job-Rated" components to match a truck exactly to your job. This means that you aren't forced to pay for capacity you don't need, and you don't get undersized units that shorten your truck's life. Just look at the range of components today's line of *Power Giants* offers:

In power, there are Sixes from 125 to 141 hp., Power-Dome V-8's from 204 to 234 hp. Exclusive Power-Dome V-8 design reduces harmful carbon deposits, greatly reducing the need for engine overhauls to maintain maximum power.

In payload, numerous Dodge medium- and heavy-duty models offer G.V.W.'s from 11,000 to 46,000 lbs., G.C.W.'s from 30,000 to 65,000 lbs. in gradual steps. A wide range of "Job-Rated" axles, transmissions, tires, springs and other components makes possible gradual increases in capacity and assures you a dependable, economical truck because it fits your job exactly.

In economy, Dodge provides the thriftiest and most efficient engine and transmission combinations. A range of eight engines and eight transmissions, including automatic Torqmatic, makes this possible. You save on gasoline, too, because Dodge engines operate efficiently on regular gasoline!

Priced competitively throughout the line, in many models Dodge is priced *lowest!* No matter what Dodge *Power Giant* your job calls for, you'll be agreeably surprised at its thrifty price tag. See your Dodge dealer soon, and get his special 40th-Anniversary deal!

DODGE *Power Giants*

For more facts, use Request Card at page 18 and circle No. 309

by GEORGE RIVEIRE, JR.

budget to show that the President applied his "stern test of priority" to civilian expenditures. What was wanted was a rollback to the levels of the 1957 fiscal budget.

At the other extreme stood Sen. Albert Gore (D., Tenn.), who felt that what the sagging economy needed was a good dose of new public works to alleviate "serious unemployment".

Acting on this thought, Gore came up with an ambitious plan to pump-prime the economy through $500 million in public works outlays. Under a bill he introduced, the expenditures would be handled by a Public Works Administration charged with the job of financially aiding projects approved at the state and local level.

Drawing on his experience in shaping the Highway Act, Gore set up a matching formula similar to that governing the Interstate Highway System. The federal government would provide 90 per cent of the funds for the public works, and local sponsors would provide the rest. The work itself would be supervised locally.

The proposed government agency, according to the senator, would approve financial aid only for useful public works projects that would "promote maximum employment and purchasing power" in the areas affected. In fact, except for managerial and supervisory personnel, only those on unemployment rolls would be eligible to work on the projects.

Gore emphasized that construction initiated by this measure would be in addition to projects authorized under other laws.

The Hell's Canyon issue is dead, but controversy continues on the installations that would best serve to develop the Snake River between Idaho and Oregon.

The Federal Power Commission fogged up the picture by turning down the application of Pacific Northwest Power Co. to build hydroelectric dams at Pleasant Valley and Mountain Sheep, sites downstream from Hell's Canyon. The decision reversed an FPC examiner's ruling in favor of the utility's plan.

The commission concluded that Pacific Northwest's project was not best adapted to a comprehensive plan for harnessing the Snake because it did not provide the flood control urgently needed in the area. The company's proposed installations, estimated to cost $144 million, were for power generation only.

FPC instead recommended construction of a high multipurpose dam at the Nez Perce site, downstream from Pleasant Valley-Mountain Sheep. This structure could not be erected if the utility's dams were built. In addition to providing adequate flood control, the commission said a Nez Perce dam would produce over two-thirds more power than Pacific Northwest's contemplated structures. It also would cost nearly twice as much —an estimated $268 million.

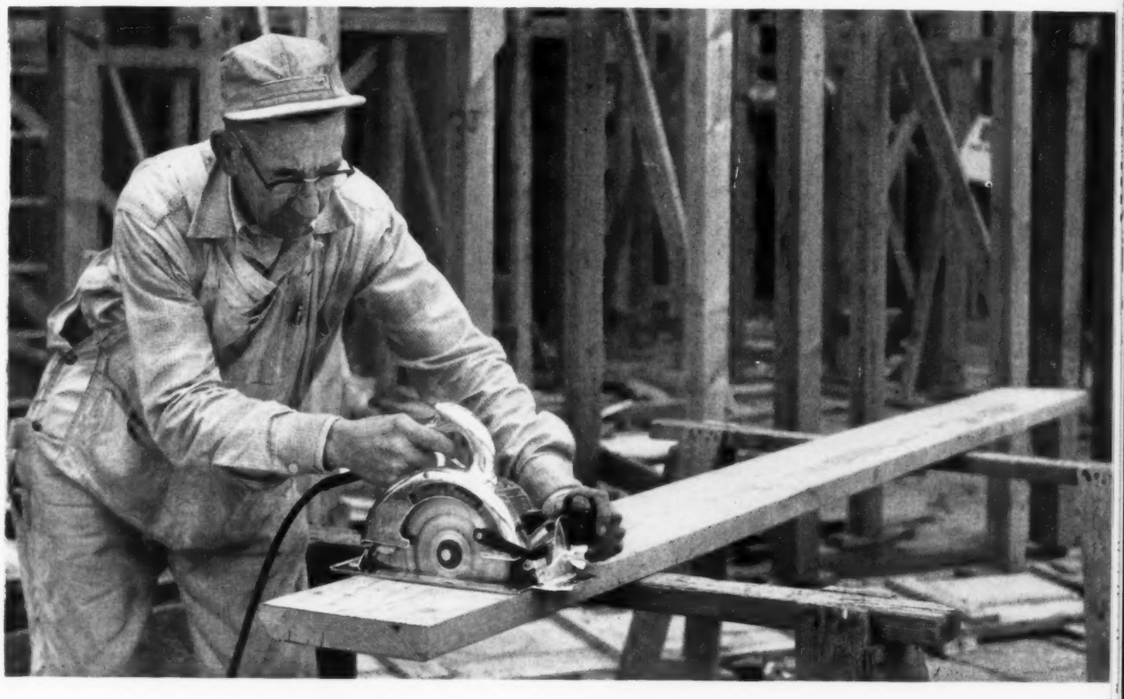
FPC carefully sidestepped the public vs. private power issue, declaring the Nez Perce dam could be built feasibly either by government or private industry. Nevertheless, Nez Perce immediately ran into strong opposition from some conservationists. They claim a dam at this location will block salmon runs on the Columbia River.

Technically, Hell's Canyon is still under consideration in Congress. But the issue was settled for all practical purposes last year when the House Interior Committee sat on a Senate-passed bill authorizing a huge federal dam at the site. Meanwhile, Idaho Power Co. has gone ahead with its FPC-licensed projects in the area, and one of its dams, at Brownlee, will be on the line in September. Work on a second has begun.

On the highway scene, the Commerce Department has recommended that appropriations for ABC roads (federal-aid primary and secondary systems) be held at $900 million in fiscal 1960 and 1961.

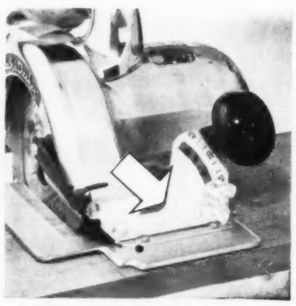
The department contended that the line should be held in 1961 so that a "balanced highway program" can be maintained within the limit of the money that will be available in the Highway Trust Fund.

But Rep. George Fallon (D., Md.), chairman of the House roads subcommittee, is insisting that his bill authorizing annual increases of $25 million carries out Congressional intent.



New Black & Decker Super-Service Saws beefed-up to take on your toughest jobs!

NEW RUGGED SHOE DESIGN built to take the abuse of continuous heavy-duty sawing —gives firm footing for improved accuracy!



IMPROVED BRACKETS give increased quadrant setting accuracy; less variation on angle of saw blade to shoe surface; greater accuracy of cut.

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B&D Super-Service Saws bring new accuracy, new convenience to your work

On-the-job tests prove B&D Saws outcut, outperform, outlast other builder saws—with power to spare! Now, Black & Decker brings you a new, even more rugged series of saws built to stand the toughest gaff!

You'll find greater accuracy, a new guard retractor lever, better visibility—features you'll really appreciate when you see them. Available in 6½", 7¼", 8", and 9¼" sizes—each complete with carrying case and rip fence. Mail coupon for a free demonstration or additional information. THE BLACK & DECKER MFG. CO., Dept. 1303, Towson 4, Md. (In Canada: Brockville, Ontario.)

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For more facts, circle No. 310→

Contractor in the making is youngest ARBA delegate

It took a 13-year-old boy to steal the spotlight—even briefly—from congressmen and officials at the American Road Builders' Convention in Washington.

Temple Gregg, a modest eighth grader from Baltimore whose hobby is drawing heavy construction machinery, and who hopes to be a contractor, got the red carpet treatment when he arrived at the Sheraton-Park Hotel to attend some of the convention sessions and to see the Materials and Services exhibit.

But he was less concerned about being a celebrity than being a part of the annual ARBA meeting and meeting some of the people from manufacturing firms who have sent him booklets, pictures, and even models of their equipment.

The youngest ARBA convention delegate was 13-year-old Temple Gregg, here accompanied by his grandfather, George Gernhart, as he inspects the Food Machinery & Chemical Co. booth at the Materials and Services exhibit. Temple's hobby is drawing construction equipment; he hopes eventually to be a contractor.

Temple's one-day visit to the convention actually had its start in disappointment. Two years ago, Temple wanted to go to the big Road Show in Chicago, but distance and school combined were enough to make the trip impossible. This past December, when he read about the ARBA convention and the Materials and Services exhibit in Washington, Temple lost no time in writing to ARBA headquarters, asking permission to visit the convention and enclosing drawings he had made of construction machinery.

So impressed were ARBA officials that they made arrangements for Temple to attend for a day, providing he was accompanied by his parents or another adult, and issued him a delegate's badge. At the same time, they told him that the Materials and Services exhibit was not on the same scale as the mammoth Road Show.

But that made little difference to Temple. He was one of the most enthusiastic visitors at the many booths set up in the hotel's Exposition Hall. And he met a number of manufacturing officials who have corresponded with him. It was the first step toward the trip to the next Road Show in Chicago in 1963.

Bill to add 2,102 miles to Interstate System

Rep. Charles A. Buckley (D., N. Y.), chairman of the House Committee on Public Works, has introduced in Congress a bill which would grant states having a toll road on the Interstate System an equivalent mileage to be classified as part of the Interstate System. These roads would be eligible for 90 per cent federal aid.

According to the bill, 15 states would have a total of 2,102 additional Interstate miles, which would add about $2 billion to the cost of completing the System.

New Atlas Copco office

An Atlas Copco construction equipment sales office has been established at 1331 Third Ave., Seattle, Wash.

Operations of the new office will be directed by David O. Day, a member of Atlas Copco Pacific's Spokane, Wash., district office. Day will cover western Washington and the Portland, Oreg., area from his new office.

J. E. Schecter elects

The J. E. Schecter Corp., mechanical contractors of Long Island City, N. Y., has elected Kenneth R. Dennick as vice president and chief engineer.

Dennick was formerly with the firm of Francisco & Jacobus for 17 years.

More than 150 miles of four-lane divided highways were opened to traffic in Michigan last year.

How **TAMPO MANUFACTURING COMPANY** mounts front bolster king pin assembly of its Model SP-11S Roller on Timken bearings to insure easy steering under heavy, varying loads.

Steers 11 tons one-handed with TIMKEN® bearings to absorb the heavy, varying loads of uneven ground

IT takes more than power steering to keep this new 11-ton Tampo Model SP-11S Roller in a straight line on uneven surfaces. To keep the front bolster assembly rigid, allow easy, sure steering under heavy and varying wheel loads, Tampo engineers mount it on Timken® tapered roller bearings. And they use Timken bearings at 18 other vital points on wheels and axles.

Tampo and other leading construction equipment manufacturers use Timken bearings because:

LOADS NO PROBLEM. Timken bearings' tapered construction lets them take all combinations of radial and thrust loads. And full-line contact between rollers and races gives Timken bearings *extra* load-carrying capacity.

REDUCE MAINTENANCE. Because they hold shafts concentric with housings, Timken bearings make closures more effective. Dirt stays out, lubricant in.

PROVIDE LONGER LIFE. Geometrically designed to roll true and precision-made to live up to their design, Timken bearings practically eliminate friction. They *roll* the load. Bearings and related parts last longer.

To further insure bearing quality, we make our own fine alloy steel. No other American bearing maker does. To get all these advantages, specify bearings trade-marked "Timken". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS ROLL THE LOAD

For more facts, use Request Card at page 18 and circle No. 311

PRODUCT PARADE

For further information on any of the products described in the following section, circle the designated number on the Request Card at page 18.

Frameless dump trailer features increased stability

A new frameless dump trailer said to provide substantially more stability over conventionally designed models is announced by the Anthony Co.

Individual models are available in lengths from 20 to 24 feet, and feature a body width tapered from 82 inches at the front to 88 inches at the rear for easier unloading. The rub rail, or running board, is slanted to prevent material from being carried on the outside of the body.

The trailer is constructed of 8-gage steel, and has a ¼-inch wear plate. The unit's double floor has one filler of 2-inch oak. Other features include extra-heavy boxed top roll and horizontal braces, a reinforced cylinder well, 42,000-pound tandem suspension, 16½×7 air brakes, and 11.00×20 14-ply tires.

The entire unit weighs 16,880 pounds.

For further information write to the Anthony Co., Dept. C&E, 1750 Baker St., Streator, Ill., or use the Request Card that is bound in at page 18. Circle No. 112.

New tractor shovel has 4-yard general utility bucket

The Yale & Towne Mfg. Co. has available a new 4-cubic-yard tractor shovel designed to handle all types of bulk materials.

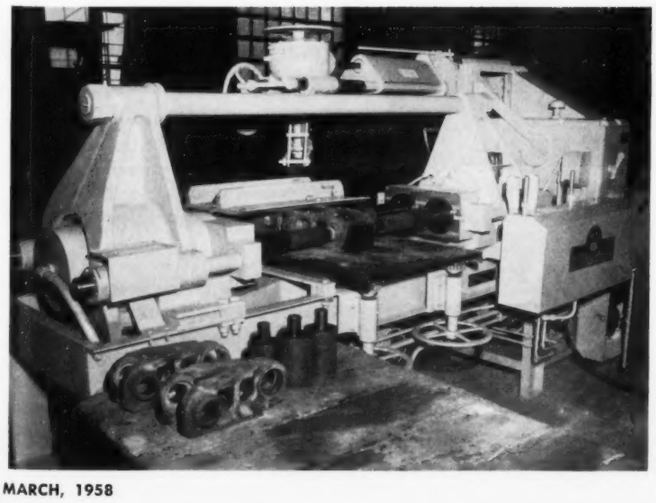
Designated Trojan Model 404, the unit is powered by a GM 6-cylinder engine, developing 240 horsepower at 2,250 rpm.

According to the firm, shifting into any of the forward and reverse speeds can be done at full throttle without stopping at any point. Travel speed of the Model 404 ranges from 3.5 mph in low to 20 mph in third, in both forward and reverse.

The machine's 4-cubic-yard general utility bucket is 120 inches wide and spans the wheels to protect the tires. The Model 404 has a dumping clearance of 13 feet 7 inches under the hinge pin, and 10 feet 6 inches under the bucket cutting edge.

This Trojan tractor shovel is also equipped with 4-wheel air brakes.

For further information write to the Yale & Towne Mfg. Co., Contractors Machinery Division, Dept. C&E, Clinton St., Batavia, N. Y., or use the Request Card at page 18. Circle No. 114.



Press cuts disassembly time on crawler tracks

A new hydraulic press said to cut 40 per cent off the press time needed to assemble and disassemble crawler track bushings and pins has been developed by Rodgers Hydraulic, Inc. Tools and adapters may be changed on the hydraulic rams so that the track press can be used with every type of crawler tractor track.

According to the manufacturer, an experienced operator can disassemble a single crawler track in about 21 minutes, as compared with at least two hours now needed for this job.

Developing 150-ton press capacity, the Model 29 TP-1 has two rams that press from both sides to remove bushing and pin simultaneously. This eliminates the need for extra handling of track parts. The model comes equipped with a power-driven conveyor, four 8-foot roller conveyor sections, and five conveyor stands.

For further information write to Rodgers Hydraulic, Inc., Dept. C&E, 7401 Walker St., St. Louis Park, Minneapolis 26, Minn., or use the Request Card at page 18. Circle No. 129.

Designed to drill blast holes up to 10⅝-inch diameter, this Model RR10 rotary drill features a mechanical drive for the drill bit, and utilizes power from the front and rear of the crawler tractor upon which it is mounted. Down pressures on the drill bit may be varied up to 60,000 pounds.

New blast-hole drill utilizes tractor power

A rotary drill designed to drill blast holes varying in diameter from 6 to 10⅝ inches is announced by the Robbins Machine & Mfg. Co.

Designated Model RR10, the unit features a mechanical drive for rotating the drill bit, and utilizes power from the front and rear of the crawler tractor—either a Caterpillar D8 or International Harvester Model TD-24—during drilling operations.

The tractor transmits power from the rear power takeoff to the transmission, which offers 5 speeds forward and double reverse, and turns a right-angle drive. This drive is connected to a square shaft extending the full length of the drill, and operates a floating head or gear box. According to the manufacturer, proper gear ratios in the transmission, the right-angle drive, and the floating head make it possible to vary drill rotation speeds from 20 to 180 rpm.

It is also possible to vary down pressures on the drill bit up to 60,000 pounds by the use of two 6¼-inch-ID feed cylinders, the company reports.

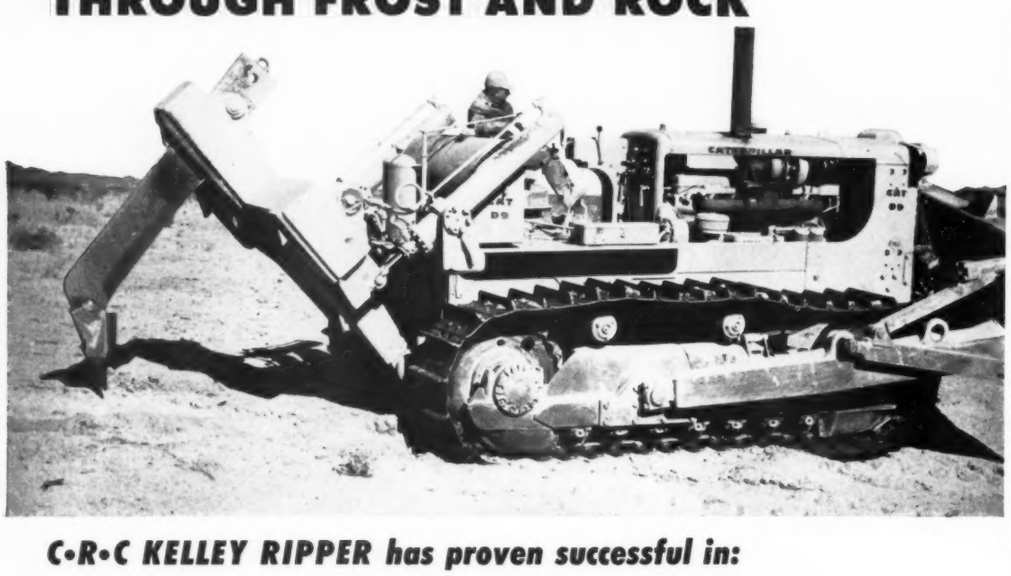
A 600-cfm rotary compressor is mounted on the front of the tractor to provide air for the removal of cuttings, which are discharged into a Type D Rotoclone.

Three hydraulic jacks are used to level the drill, which reportedly can be leveled on a 15 per cent grade.

The drill mast is hinged to the pedestal and, for short-haul portability, can be quickly lowered or raised with two hydraulic cylinders. For long distance transport, the entire drill mast and air compressor can be easily removed and loaded on a carrier, according to the manufacturer.

For further information write to the Robbins Machine & Mfg. Co., Dept. C&E, P. O. Box 281, Oneonta, Ala., or use the Request Card at page 18. Circle No. 92.

RIPS DEEPER
THROUGH FROST AND ROCK



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Maximum ripping depth is seven feet for the largest ripper. For right-of-way clearance two shanks can be used. Hydraulic pistons maintain a constant ripping depth with no danger of the shank raising clear of the ground during a pass.

C-R-C manufactures a full line of rippers to fit almost every tractor. Get full details by calling or writing C-R-C in Houston, Texas.

C-R-C Kelley Coal Ripper shown making a pass through a strip mine. Penetration depth is a maximum 7 feet.

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Canadian Equipment Sales & Service Co., Ltd., 7310 99th St., Edmonton, Alberta, Canada

For more facts, use Request Card at page 18 and circle No. 312

Device determines exact weight of steel products

An instrument that enables the user to determine quickly and accurately the exact weights of a variety of steel products is offered by the Alcott Calculator Co.

According to the manufacturer, there are over 1,000 items contained on this compact slide chart, including steel angles, beams, channels, flats, rounds, squares, and hexagons.

Also given are the weights of steel sheets (H. R., C. R., and galvanized), plate, floor plate, reinforcing bars, and pipe.

An important feature of the weight finder is that all of the answers are given exactly as they are shown in standard weight tables. The scale system, which requires estimation, is not used.

The Alcott steel weight finder is 8½ inches in diameter, and is designed to fit into any standard notebook or brief case.

For further information write to the Alcott Calculator Co., Dept. C&E, P. O. Box 4606, Fort Lauderdale, Fla., or use the Request Card at page 18. Circle No. 54.

A 54-pound unit powered by a 2¾-hp, 4-cycle engine, this Hale Torrent pump has a maximum capacity of 7,000 gph. The unit features a large-passage open impeller designed for clogless operation.

New self-priming pump is lightweight, versatile

A new, portable, self-priming pump is announced by the Hale Fire Pump Co.

Designated Torrent, the unit is said to be extremely versatile, and has a capacity of up to 7,000 gph. It also features a large-passage open impeller designed to provide clogless operation.

A lightweight (54-pound) unit, the pump is powered by a 2¾-hp, 4-cycle engine with built-in exhaust valve rotator.

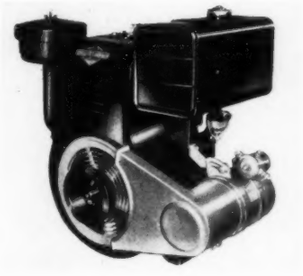
The Torrent is also available in units of electric-driven and pedestal-type design, both of which will provide comparable volumes and pressures when comparable power is used, according to the manufacturer.

For further information write to the Hale Fire Pump Co., Dept. C&E, Conshohocken, Pa., or use the Request Card at page 18. Circle No. 55.

Electric starter unit for air-cooled engines

A bolt-on electric starter unit said to be quickly and easily installed on most makes and models of air-cooled engines is offered by the Dura-Craft Products Co.

Designated Starta-Matic, the new unit has no gears, chains, or over-running parts to wear. According to the manufacturer, faster cranking



starts the engine quickly even when flooded, and there is no rope to pull or rewind.

The starter may be operated with a push-button from the same position as other controls. A self-energizing clutch instantly and automatically disengages itself as the engine starts.

Available in 6 or 12-v models, Starta-Matic units are ready to install without drilling or welding.

For further information write to the Dura-Craft Products Co., Dept. C&E, 713 W. Manchester Blvd., Inglewood, Calif., or use the Request Card that is bound in at page 18. Circle No. 74.

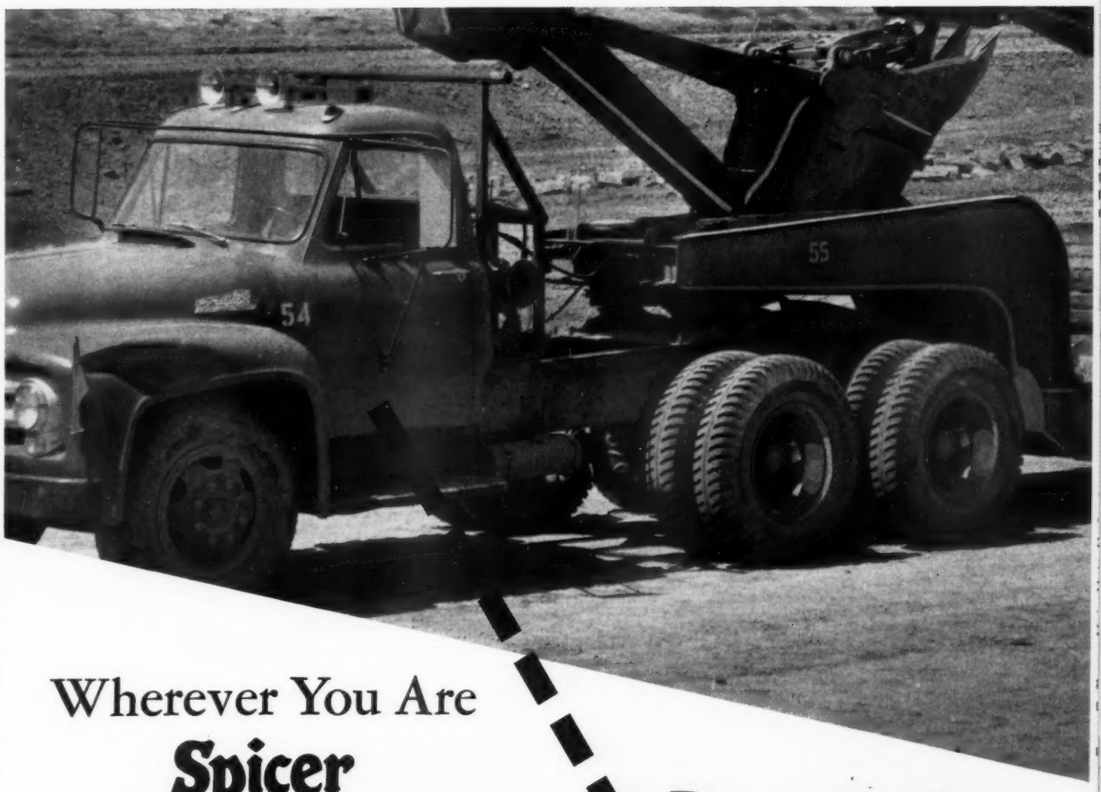
Longer plywood-form life, smoother formed surfaces

A new preparation for wood or plywood concrete forms, said to produce clean, smooth formed surfaces and prolong the use-life of plywood panels, is available from Form-Kote, Inc.

Designated Form-Kote, the additive eliminates scraping and cleaning of forms between pours, the manufacturer states. Also, forms may be used immediately after the preparation is applied, with no drying or curing cycle necessary.

One application of Form-Kote reportedly will remain effective for an average of four hours.

For further information write to Form-Kote, Inc., Dept. C&E, 700 W. Virginia St., Milwaukee 4, Wis., or use the Request Card at page 18. Circle No. 102.



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MARINE: Universal Joints, Propeller Shafts, Gear Boxes, Forgings, Stampings.

Many of these products manufactured in Canada by Hayes Steel Products Limited, Merrittton, Ontario.

DANA Spicer

For more facts, use Request Card at page 18 and circle No. 313

Completely mobile under its own power, the Model C Ditch Witch trencher is said to be easily handled on the job by one man. The unit will dig up to 6-inch-wide trenches to a 2-foot depth.

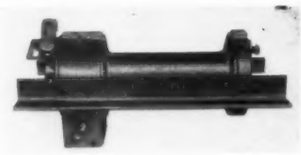
Light trenching machine features self-propulsion

A new self-propelled light trenching machine, the Model C Ditch Witch, is announced by The Charles Machine Works, Inc.

The Model C is powered by a 7-hp air-cooled gasoline engine, and will dig trenches 3, 4½, or 6 inches wide to depths up to 2 feet. Trenching speed is about 4 fpm.

Completely mobile under its own power, the C trencher is easily handled on the job by one man. It is small enough—34 inches wide—to go through a standard-width gate.

For further information write to The Charles Machine Works, Inc., Dept. C&E, 636 B St., Perry, Okla., or use the Request Card at page 18. Circle No. 2.



New front-end winch has 7½-ton capacity

The Model MU7-16F front-end winch, a 15,000-pound-capacity unit for truck installation, is available from the Braden Winch Co. Since all parts bolt together, installation is said to be fast and easy, with a small hand wrench the only tool required.

The MU7-16F is designed to provide maximum speeds for the pull as the winch line builds up on the drum during operation. The unit is so designed that all parts work together; thus, with no one part taking all the stress, strength of the winch is increased and its work-life is lengthened, according to the company.

The new winch weighs 234 pounds, and has a gear ratio of 30:1.

Operating at full cable-drum capacity, the drum will take 330 feet of ½-inch rope, 260 feet of 9/16-inch rope, and 210 feet of ⅝-inch rope.

For further information write to the Braden Winch Co., Dept. C&E, P. O. Box 547, Broken Arrow, Okla., or use the Request Card at page 18. Circle No. 24.

Tractor brake control for wagons, scrapers

An independent brake-control group for the Cat DW20 tractor is available from the Caterpillar Tractor Co.

Designed for use with either wagons or scrapers, the attachment allows the operator to engage the brakes of the trailed unit only. It works independently of the standard tractor brakes, and serves as an anti-jackknifing device when operating on hazardous underfooting.

The control group consists of a two-position hand-operated air valve and air circuit, with the hand valve mounted on the steering column.

The braking attachment is available for field installation, or may be factory-installed on new machines.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 83.

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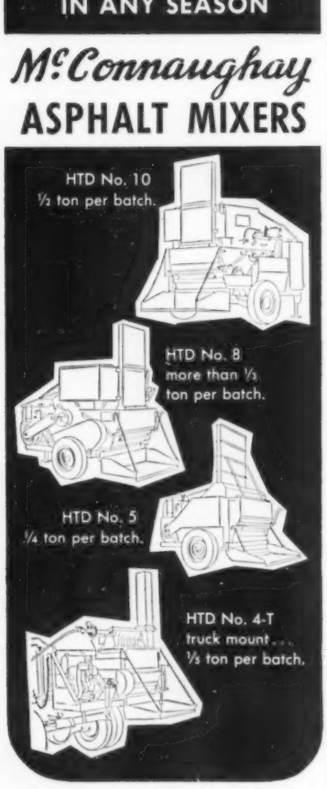

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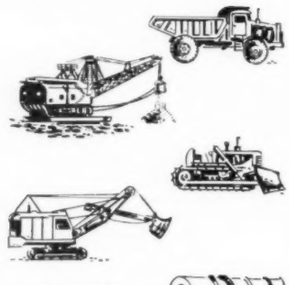

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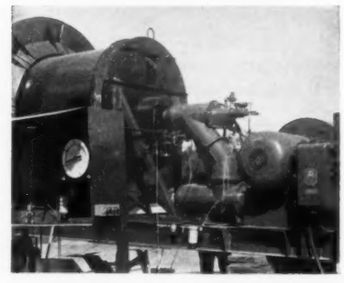

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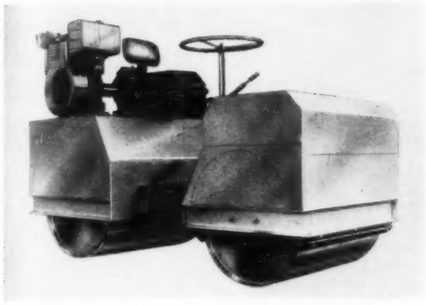

Center-Pivot steering, a major feature of the Midland Model 150 1½-ton power roller, permits both rollers to turn, assuring perfect tracking of the rear roller.

A special boom attachment for a Sherman front-end loader was the answer to the problems confronting the Zweig Construction Co., of Mayville, Wis. In response to the firm's need for an inexpensive device to hoist materials to second and third-story scaffolding, Sherman Products, Inc., designed the special rig which replaces the loader's regular scoop. For further information about this hoisting device, write to **Sherman Products, Inc.**, Dept. C&E, 3200 W. 14 Mile Road, Royal Oak, Mich., or use the Request Card at page 18. Circle No. 69.

New 1½-ton power roller affords full compaction

Midland Products Co. announces a new 1½-ton power roller.

Designated Model 150, the machine features Center-Pivot steering, designed to enable both rollers to turn, assuring perfect tracking of the rear roller. The combination of Center-Pivot steering and both rollers having the same width affords full compaction from both rollers, and eliminates lap marks, according to the manufacturer. The unit is powered by a Briggs & Stratton 9-hp engine.

With only a 3-foot body overhang, the Midland 150 is said to be extremely maneuverable in confined areas. A 9-foot ground clearance provides flush rolling up to curbing. Both front and rear rollers are equipped with spray bars.

Empty, the Midland 150 weighs 1,480 pounds; with water ballast, 2,860 pounds.

For further information write to the Midland Products Co., Dept. C&E, 181 Greenwood Ave., Midland Park, N. J., or use the Request Card at page 18. Circle No. 47.

• ECONMOBILES Go 22 ft. with Conventional Fork
• With New Crane Hook Go 32 ft.

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for ECONMOBILES
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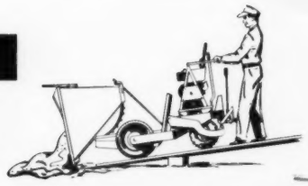
Now you can go 10 feet higher with the work-horse of materials handling. The ECONMOBILE's new Crane Hook is ideal for raising trusses, roof decking, bar joists, and a flock of other materials, formerly thought to be just for expensive cranes. Reach is 18 ft. —and more. Capacity up to 1500 lbs. With a sling, you can handle pallets, stone, and other masonry materials to greater heights for greater savings.

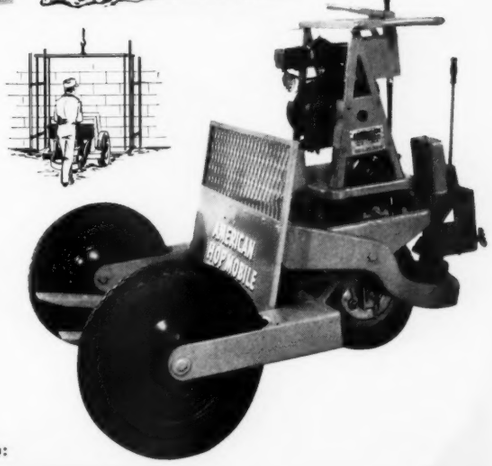
American announces the new

HOPMOBILE



Motorized Materials Handling Cart

Ever watch two or three men struggling with 1500 lb. loads on a conventional, hand-pushed, brick cart? Loads like that are duck-soup for the power-packed new HOPMOBILE. *One man* can handle bricks, blocks, stone, and dozens of other materials with precision. With optional, removable, 10 cu. ft. Hopper, HOPMOBILES can handle concrete, mortar, plaster, as well as all kinds of bulk materials. Fingertip controls for power and dumping allow complete control over the load. It's heavy duty all around, from all steel tubular frame through heavy duty Continental engine. The price? Lower than most—just ask one of our 86 distributors.



Or write to:

AMERICAN ROAD EQUIPMENT CO.
4203 North 26th Omaha, Nebraska

For more facts, use Request Card at page 18 and circle No. 318

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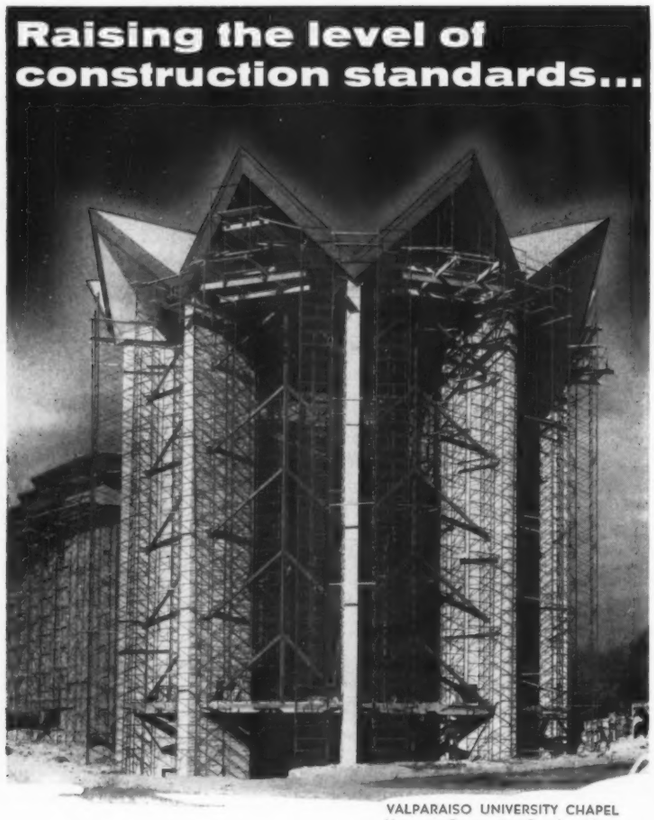

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For more facts, use coupon, or Request Card at page 18 and circle No. 320

Product Parade

The Henry L600 loader, has a rated capacity of 1,500 pounds to full height. It offers up to 20 degrees of bucket rollback, a 58-degree bucket dump, and a 9-foot maximum height of dump.

New loader features 9-foot dumping height

A new loader for mounting on Henry tractors is announced by the company. Designated Model L600, the unit is said to be lighter, easier to install, and more simple to operate.

Operating with 2½-inch bore, double-acting lift and bucket cylinders with 1½-inch chromed rods, at a pressure of 1,250 psi, this Henry loader offers up to 20 degrees of bucket rollback, and a 58-degree bucket dump. Its maximum height of dump is 9 feet at a 40-degree dump.

The L600 has a rated capacity of 1,500 pounds to full height, and a breakaway capacity of 3,000 pounds. It reportedly can dig 4 inches below depth, with a reach up to 3 feet ahead of the unit at 40-degree dump.

Another feature of the unit is a wire-mesh, re-usable, line-type oil filter which can be conveniently cleaned without draining the oil reservoir.

For further information write to the Henry Mfg. Co., Dept. C&E, P. O. Box 521, Topeka, Kans., or use the Request Card at page 18. Circle No. 17.

Offer new differential for increased traction

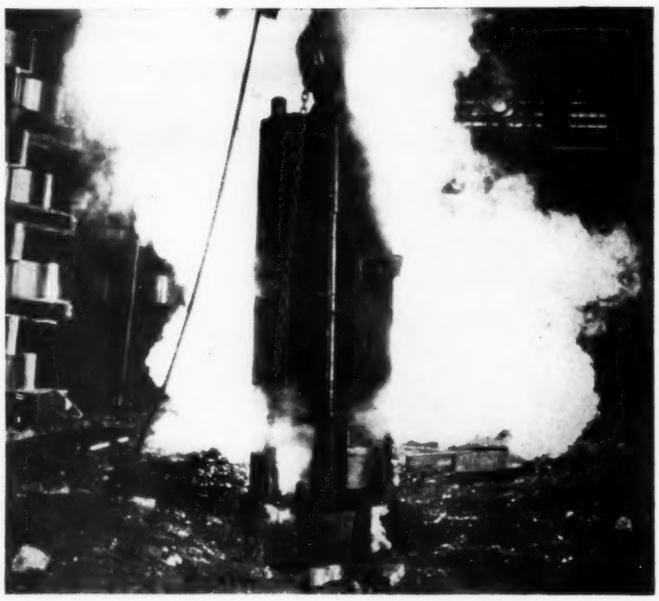
A new-type spin-resistant automotive differential said to provide increased traction on slippery surfaces, as well as enabling a vehicle to pull out of mud and sand holes, is announced by the Warner Automotive Division of the Borg-Warner Corp.

With this differential, when one rear wheel has more traction than the other, the major portion of the engine power is automatically delivered to the wheel with the greater traction. The new unit is readily interchangeable with most existing conventional differentials, and is so designed that it will never cause full locking of one axle shaft, the manufacturer reports.

Designed for use on a wide range of vehicles including construction machinery, this Warner unit reportedly does not interfere with normal steering, and will not develop excessive backlash with wear.

For further information write to the Borg-Warner Corp., Dept. C&E. 310 S. Michigan Ave., Chicago 4, Ill., or use the Request Card at page 18. Circle No. 58.

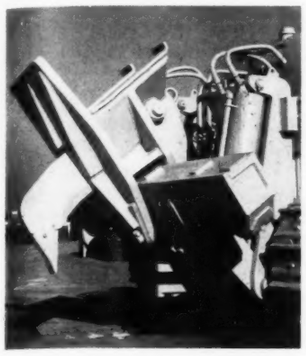
(Advertisement)



Successfully expanding plant facilities under difficulties—driving one of 74 pipe piles, each 10 in. in diameter and 45 to 55 ft. long, by a McKiernan-Terry Pile Hammer to provide foundations for additional heavy equipment within a steel mill while workers keep production going nearby. McKiernan-Terry Corporation, 82A Richards Ave., Dover, N. J.

For more facts, use Request Card at page 18 and circle No. 321

For more data on any item, circle indicated number on card at page 18.



Shown mounted on a Caterpillar D9 tractor is the new Peterson extra-heavy-duty ripper tooth and swivel bracket attachment. The unit, designed to utilize the tandem ripping power of two D9's, may also be fastened to the draft beam of Cat and Ateco tractor-mounted rippers.

Ripper tooth and bracket for tandem ripping work

An extra-heavy-duty ripper tooth and swivel bracket attachment designed to utilize the tandem ripping power of two Caterpillar D9 tractors is offered by the Peterson Tractor & Equipment Co.

Another important feature of this unit is its ability to fasten to the draft beam of the standard tractor-mounted ripper available from Caterpillar or Ateco.

According to the company, the large extended shelf of the ripper makes contact easy to establish and maintain. Ripping depth is adjustable to 24 or 30 inches.

For further information write to the Peterson Tractor & Equipment Co., Dept. C&E, 955 First Ave., San Leandro, Calif., or use the Request Card at page 18. Circle No. 106.

Water ballast, instead of the usual sand or earth, is used in this Seaman-Gunnison Duo-Pactor compaction unit now being employed by the Healy Construction Co. of Palmdale, Calif., on the huge Edwards Air Force Base runway extension program. A turn of a valve is all that is required to vary ballast weight or convert the unit into a sprinkler. The main ballast tank holds 760 gallons of water, totalling 6,360 pounds. A smaller tank holds another 240 gallons for watering the coco mats when using the rolls on bituminous hot-mix. For further information on the Duo-Pactor, write to the **Seaman-Gunnison Corp.,** Dept. C&E, 2763 S. 27th St., Milwaukee, Wis., or use the Request Card at page 18. Circle No. 9.

SAVE M NEY ON WET J BS

pre-drain faster with HIGH-CAPACITY equipment by

GRIFFIN

WELLPOINT CORP.

881 East 141st Street, New York 54, N. Y.
Hammond, Ind. Houston, Tex. Jacksonville, Fla.

Catalogue on request

For more facts, circle No. 322

WHO SAYS...

ALL CONCRETE VIBRATORS ARE THE SAME!

Compare...

VIBRO-PLUS FEATURES

6 MONTH WARRANTY

All Vibro-Plus vibrator shafts and heads are fully guaranteed for a period of 6 months. No other vibrator carries such a guarantee.

LOW SHAFT SPEED— ONLY 3600 R.P.M.

Flexible shaft speed of 3;600 R.P.M. produces 11,000 to 12,000 vibrations per min. Patented Rollgear design eliminates V-belt and clutches.

LOW MAINTENANCE

Vibrator head runs dry—no lubrication necessary. Simply regrease every 6 months. Low shaft speed of 3,600 R.P.M. cuts wear to a minimum.

VIBRO-PLUS Rollgear LINE!

Rollgear vibrator heads range from only 1⅜" diameter up to 4½" — small enough to get into the tightest places and big enough to move large quantities of concrete.

All have the same convenient snap coupling between shaft and motor. Shaft and head can be connected in a matter of seconds.

The same snap coupling fits all Vibro-Plus power units — gas, electric or pneumatic. Converson kits for engines you now own are available, enabling them to power all Rollgear shafts and heads.

AD NO. 41-36

VIBRO-PLUS PRODUCTS, Inc.

STANHOPE, NEW JERSEY

WORLD'S LEADING MANUFACTURER OF VIBRATORY EQUIPMENT FOR OVER TWO DECADES!

For more facts, use Request Card at page 18 and circle No. 323

The several design changes incorporated into this Model AC-40A hot-pour joint sealer include a new-type pump and new Wisconsin engine, with both moved to the rear of the unit for easier operation. The piping and distribution systems have also been improved.

Hot-pour joint sealer has many improvements

The Clipper Mfg. Co. announces several improvements in its hot-pour joint sealer.

The firm's Model AC-40A, successor to the AC-40, combines in one unit the equipment needed for melting and properly applying the sealing compound.

The AC-40A is equipped with a new-type material pump designated the Moyno, said to provide longer work-life and reduced maintenance.

The engine and the pump on the AC-40A have been moved to the rear of the sealer for easier operation, particularly in the sealing of transverse control joints.

A simplification of the piping and distribution systems has eliminated the need for extra valves and minimized the possibility of the material "freezing" in the pipes.

Power for the unit is supplied by a new, improved Wisconsin air-cooled, 18-hp, 4-cycle, 2-cylinder engine. The engine is propane-fired, and is equipped with a clutch and reduction gear.

For further information write to the Clipper Mfg. Co., Dept. C&E, Suite 149, 2800 Warwick, Kansas City, Mo., or use the Request Card that is bound in at page 18 of this issue. Circle No. 5.

HEAVY-DUTY SCREED SUPPORTS — Overpasses and Underpasses

THREADED COIL TIES — Engineering Structures

TILT LOCK CLAMPS — Heavy-Duty Forming

4-STRUT COIL ROD ANCHORS — Temporary or Permanent Anchorage

SUPERIOR

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These are examples of the numerous types of form ties, anchors, inserts, and other items in Superior's most complete line of concrete accessories. The illustrations show the variety of concrete form work and related jobs in which Superior accessories are used. All items are designed to provide the most dependable and efficient forming methods.

WHENEVER YOU ARE PLANNING FORM WORK... Superior's technical assistance is available to prepare suggested layouts. Call or write to nearest address shown below.

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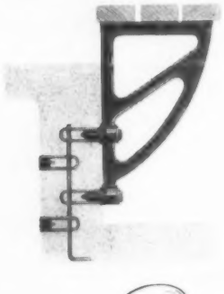
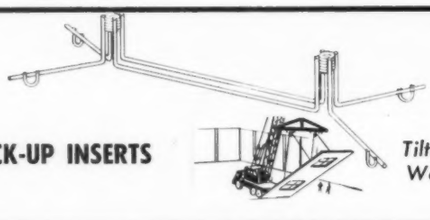
New York 19, N. Y.

Pacific Coast Plant
2100 Williams St.
San Leandro, Calif.

PLATE HANGER FRAMES — Bridge Superstructures



RISER-FRAMES — Stadiums and Grandstands



PICK-UP INSERTS — Tilt-Up Work

SNAP TIES — Ordinary Foundations

For more facts, use Request Card at page 18 and circle No. 324

Offer sealing fastener for irregular surfaces

A new sealing-type fastener with ability to provide a secure triple seal on irregular, corrugated, curved, as well as flat surfaces, is offered by the Russell, Burdsall & Ward Bolt & Nut Co.

Designated Spin-Seal, the fastener consists of a spring-type hardened washer with a permanent flowed-in

gasket sealant which is pre-assembled to any type of standard machine screw, cap screw, or bolt.

The new fastener is said to overcome a common problem of sealing fasteners—subjecting the seal to twisting and tearing action—because

Quick starts down to 65° BELOW ZERO for Diesel and gasoline engines

SPRAY STARTING FLUID, with the propellent used in the pressurized can, insures quick starts for Diesel and gasoline engines in temperatures as low as 65° F. below zero and withstands 180° F. heat. This combustible propellent was developed after two years of research.

SPRAY STARTING FLUID pressurized with our inert propellent is absolutely safe and odorless in storage.

SPRAY STARTING FLUID is sold through distributors, wholesalers and their dealers located throughout the United States and Canada.

SPRAY PRODUCTS CORPORATION

P. O. BOX 584 • CAMDEN 1, NEW JERSEY

For more facts, circle No. 325

the washer does not turn when the screw or bolt is tightened. The sealant is designed to withstand extreme temperatures and pressure, according to the company.

Spin-Seal fasteners are supplied in screw sizes from No. 6 to ½-inch, with washers ranging from 0.560 to 0.920-inch in diameter, 0.025 to 0.040-inch thick, and 0.065 to 0.090-inch high.

For further information write to the Russell, Burdsall & Ward Bolt & Nut Co., Dept. C&E, 100 Midland Ave., Port Chester, N. Y., or use the Request Card at page 18. Circle No. 63.

Soil consolidation tester has 3-ton capacity

Consolidated test loads of up to 6,000 pounds reportedly are applied instantaneously and maintained indefinitely with the new Model 354 K W Conbel offered by the Tinius Olsen Testing Machine Co. The unit may be used with any standard consolidometer for evaluating the amount and rate of soil settlement under load.

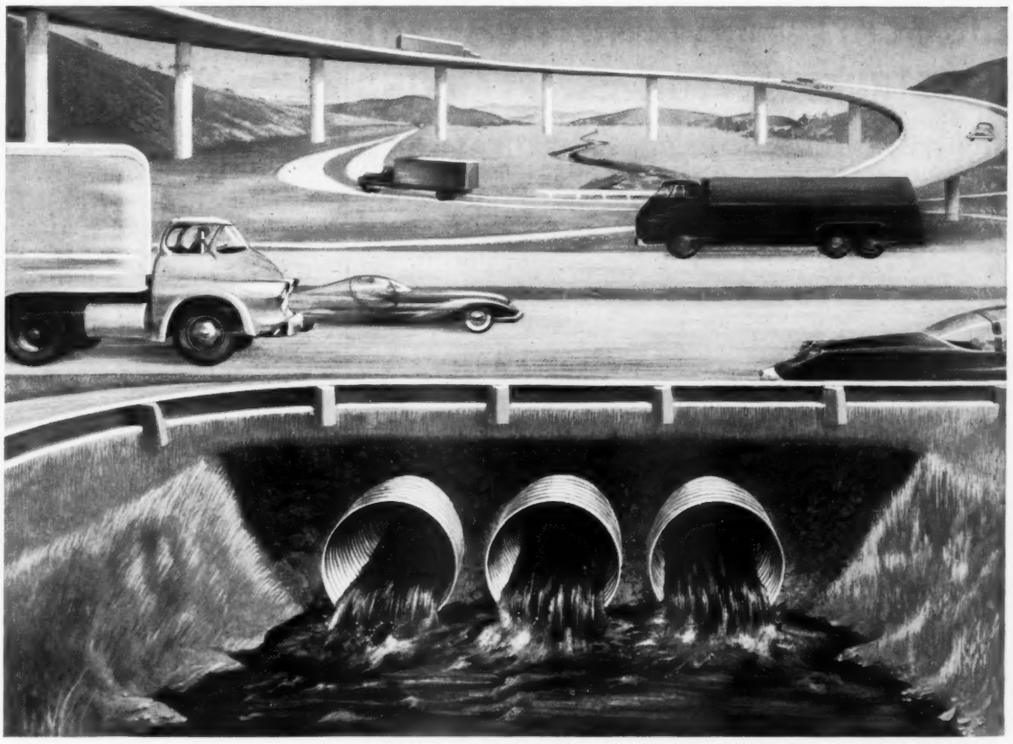
This compact, air-operated testing machine is said to completely eliminate the use of cumbersome dead weights. Positive load application is assured, due to a pressure gage that shows exactly what load will be applied before it is imposed on the specimen.

Two ranges are provided for convenient operation.

Designed for table-top use, this semiportable unit measures 17 inches long, 14 inches wide, 28 inches high, and weighs 130 pounds.

For further information write to the Tinius Olsen Testing Machine Co., Dept. C&E, 7777 Easton Road, Willow Grove, Pa., or use the Request Card at page 18. Circle No. 70.

Shown sealing shoulders upon the completion of a double bituminous penetration on a section of Montana State Highway 20, between Great Falls and Missoula, is the Flaherty Spread-Master power spreader. Owner of the machine, and contractor for the job, is the Hilde Construction Co., of Great Falls. Note that only one of the two conveyors is transferring material from the truck-receiving hopper to the spread-hopper in front. According to the manufacturer, this, with the quick-acting cut-off gates in the spread-hopper, makes it possible to apply a uniform and positive application of cover material in desired widths from 6 inches up to the maximum width of the hopper. The 10, 11, 12, and 13-foot hoppers are available and can be interchanged. For further information about the Spread-Master, write to the **Flaherty Mfg. Co., Inc.**, Dept. C&E, P. O. Box 1042, Pocatello, Idaho, or use the Request Card at page 18. Circle No. 10.



WHEELING CORRUGATED GALVANIZED METAL CULVERT PIPE IS MANUFACTURED TO COMPLY WITH FEDERAL AND ALL STATE HIGHWAY SPECIFICATIONS.

Low cost-per-year of Wheeling Corrugated Metal Pipe means years of highway economy

Saving public tax dollars is second nature to Wheeling Metal Pipe. Its low first cost . . . plus lowest cost-per-year . . . can't be equalled by rigid types. Unexcelled, too, is the flexible strength of Wheeling Metal Pipe . . . its durability through decades of weather and traffic torture . . . the galvanized steel from which it's made.

Saving time for road-builders is another specialty of Wheeling Metal Pipe. The easy-to-handle sections drop into place quickly . . . fit together with the help of simple hand tools and manual labor. Light and long, they're easy to ship by truck or train—a big help in meeting the tight schedules of today's highway-building.

All of which means better, longer-lasting highways . . . and at lower cost.

Wheeling Metal Pipe or Pipe Arch, in Copper-bearing Steel or Copper-bearing Pure Iron, plain galvanized or bituminous coated (with or without paved invert) comes in a wide range of gauges and diameters. Call the Wheeling warehouse, sales office or culvert plant nearest you. Wheeling Corrugating Company, Wheeling, W. Va.

Wheeling

WHEELING CORRUGATING COMPANY—IT'S WHEELING STEEL

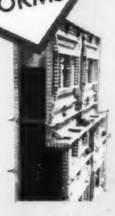
Where headroom is limited, Wheeling Pipe Arch is recommended. The increased area permits more rapid drainage.

Look how quickly and easily men work with Wheeling Metal Pipe. This, too, means lower costs, faster installation.

Wheeling warehouses, sales offices or culvert plants are in Atlanta, Boston, Buffalo, Chicago, Columbus, Des Moines, Detroit, Houston, Kansas City, Louisville, Madison, Martins Ferry, Minneapolis, New Orleans, New York, Peoria, Philadelphia, Richmond, St. Louis.

For more facts, use Request Card at page 18 and circle No. 327

SAVE MONEY when pouring concrete RENT ECONOMY STEEL FORMS



Economy Steel Forms save time, labor, material. Quickly lock together with simple twist of a clamp. Standard units fit most jobs. Where needed, special forms can be fabricated to specification.

Other forms available on a purchase basis

E

Economy Forms Corporation
Box 128, H. P. Station
Des Moines, Iowa

Please send catalog and address of nearest sales office (there are 21 coast-to-coast).

Name_____

Firm name_____

Street address_____

City_____ State_____

For more facts, use coupon or circle No. 326

The new Mack N-Group of cab-forward-type trucks are offered with 150 and 185-hp gasoline engines, and Mack Thermodyne 170 and 205-hp diesels. Transmissions of 5, 10, 15, and 20 speeds are available.

Cab-forward truck line accommodates 205-hp diesel

A new line of cab-forward-type trucks with set-back front axle, and capable of accommodating a diesel of more than 200 horsepower, is announced by Mack Trucks, Inc.

The line is designed for use either as four or six-wheel trucks or tractors, with either gasoline or diesel engines. Designated N-Group, it is divided into two series.

The 40-Series, for lighter hauling, registers a maximum gvw of 28,000 pounds, and a gross combination weight on tractors of 40,000 to 53,000 pounds. The 60-Series, for heavier work, has a maximum gvw of 30,000 pounds, and a gross combination weight rating on tractors of 50,000 to 65,000 pounds.

Linkage-type hydraulic power steering is available on all models in this group. The brakes, clutch, and transmission are all air-controlled for extra ease of operation.

Other features include dual headlights, a range of transmission covering 5, 10, 15, and 20 speeds, and a choice of either single reduction or dual reduction rear axles.

The power units featured are Mack gasoline engines of 150 and 185 horsepower, and Mack Thermodyne 170 and 205-hp diesels.

For further information write to Mack Trucks, Inc., Dept. C&E, 1355 W. Front St., Plainfield, N. J., or use the Request Card at page 18. Circle No. 27.

Pipe locator features transistorized design

A transistorized pipe locator said to have an 18-foot depth range, and an approximately 200-foot average tracing distance, is offered by the Goldak Co., Inc.

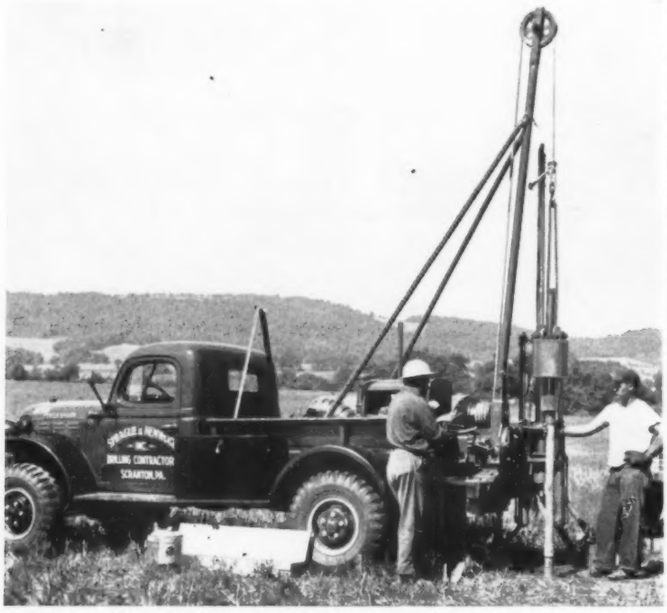
The unit's transistors and other components are capsulated in five different "packages", practically eliminating adverse effects of temperature, humidity fluctuations, shock, and vibration, according to Goldak.

The transmitter and receiver are each battery-powered by four size C flashlight cells, and weigh 4½ and 4¾ pounds, respectively.

For further information write to the Goldak Co., Inc., Dept. C&E, 1544 W. Glenoaks Blvd., Glendale 1, Calif., or use the Request Card at page 18. Circle No. 41.

SUB-SURFACE INVESTIGATIONS FOR THE STRUCTURE YOU ARE PLANNING

Highways · Tunnels · Bridges · Buildings · Dams



A Sprague & Henwood Drill Crew Recovering Soil Samples For A Highway Relocation Project

The lasting success of any construction project depends on the design of a proper foundation; and the design, in turn, depends on an adequate knowledge of the sub-surface soil and rock.

Sprague & Henwood's unbeatable team of experienced drill crews, modern equipment, and expert supervision is your assurance that the soil samples and rock cores recovered will be the best obtainable under the conditions that prevail. The structures of tomorrow are only as good as they are designed today, based upon a complete, accurate, and dependable sub-surface study.

Behind Sprague & Henwood's drilling and supervisory personnel is 75 years of accumulated knowledge and experience, gained from completing thousands of successful drilling contracts, under every conceivable condition.

The equipment used is first-quality and of the proper type. It is built in Sprague & Henwood's own plant, and is "field-tested" prior to being put into general use to insure customer satisfaction and completion of the job in the shortest possible time.

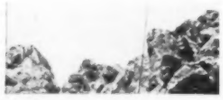
Crews and adequate equipment are located throughout the United States. Other services include grout-hole and blast-hole drilling and pressure grouting.

SPRAGUE & HENWOOD, Inc.

SCRANTON 2, PA.

BRANCH OFFICES: NEW YORK • PHILADELPHIA • PITTSBURGH • ATLANTA
GRAND JUNCTION, COLORADO • BUCHANS, NEWFOUNDLAND

For more facts, use Request Card at page 18 and circle No. 328



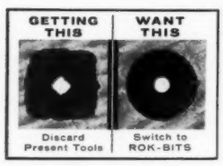
IT'S BRUNNER & LAY ROK-BITS *AGAIN*

Photo courtesy Caterpillar Tractor Co.

...ON ANOTHER TOUGH ONE!

One of the toughest sections encountered in trenching a 241-mile pipeline from Needles to Newhall, California, was this almost inaccessible pass composed of solid rock. Brunner & Lay blast hole drilling tools helped the contractor, R. H. Fulton & Co., complete the job on time, with costs kept in line.

Drilling was done with twin percussion drills, fitted with 1¼" Round 8 and 12 ft. Brunner & Lay drill rods and 2" D-carbide Rok-Bits. They gave easy-to-load, constant gauge holes, provided better chip clearance to give big daily footage at lowest cost. Put their cost-cutting features to work for you. Call our nearest plant. Ask for catalog #756. Brunner & Lay, Inc., 9300 King St., Franklin Park, Ill. *Plants & warehouses:* Philadelphia; Asheville; Birmingham; Dallas; Denver; Los Angeles; Portland, Ore.; Montreal.



Brunner & Lay Carbide Rok-Bits in these body types—cross, chisel, "X", cutaway, taper socket. Furnished in standard wagon drill and hand held drill threads also — 1000, 700, 600, 400, 200 and J-7.50 threads. Bit sizes up to 6½-in. in our Hole-Master.

Brunner & Lay Products

CARBIDE ROK-BITS • INTRA-SET STEEL • DRILL RODS • COUPLINGS, ADAPTERS & EXTENSION STEEL
PNEUMATIC TOOL ACCESSORIES • MOIL POINTS, CLAY SPADES, ASPHALT CUTTERS, ETC.

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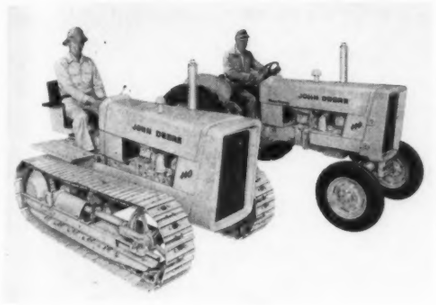


The new John Deere 440 Series crawler and wheel-type tractors feature as optional equipment a clutch-type direction reverser that permits the operator to go ahead or back up in the same speed without shifting gears.

New series of crawler, wheel-type tractors

John Deere announces the availability of its 440-IC crawler and 440-I wheel-type tractors.

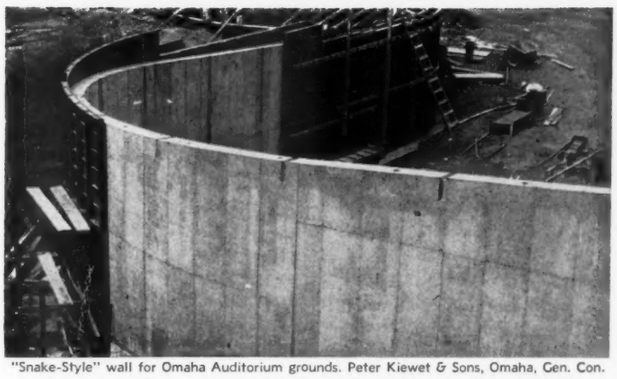
The crawler model of this new 440 Series is mounted on two heavy steel cross members designed to absorb shocks and stresses from such front-mounted equipment as loaders and bulldozers. According to the company, new strength and durability are designed into the power train and track assemblies of the crawler. In addition, the single track-tension springs are said to have increased ease and accuracy of adjustment.

The 440 wheel-type model features a new heavy-duty front axle and support. Built-in power steering for this model is optional.

Optional equipment for both 440 Series tractors includes a new clutch-type direction reverser. This device permits the operator, with a touch of a lever, to go ahead or back up in the same speed without shifting transmission gears. The direction reverser is available for units equipped with 4 or 5-speed transmissions.

Tractors in the 400 Series are powered by John Deere 30-hp valve-in-head engines.

For further information write to John Deere, Industrial Division, Dept. C&E, 3300 River Drive, Moline, Ill., or use the Request Card at page 18. Circle No. 91.



"Snake-Style" wall for Omaha Auditorium grounds. Peter Kiewet & Sons, Omaha, Gen. Con.

Symons Forms on Serpentine Retaining Wall

Symons Forms were used exclusively to form this serpentine retaining wall which is 20 feet high at the highest point and slopes to 8 feet high at the lowest point. These walls were constructed to facilitate parking on the ground of Omaha, Nebraska's new city auditorium. Symons Forms were used for 30,000 square feet of forming on this job.

Send plans for your next job and get complete layout and cost sheet—no obligation. Catalog F-10 sent FREE upon request. Symons Clamp & Mfg. Co., 4251 Diversey Avenue, Dept. C-8, Chicago 39, Illinois.

For more facts, use Request Card at page 18 and circle No. 331

non-slipping power transmission licks tough coral digging

You dig coral rock when you dig in Dade County, Florida. Clevelands have been chewing out trench in these tough rock formations for over 30 years, delivering good steady production on every job. This dependable performance in rugged digging is largely due to Cleveland's time-proved system of economical power transmission to digging-wheel and crawler, through positive, power-saving, non-slipping gear trains. Cleveland's exclusive multi-speed transmission gives the operator finger-tip control of more than 30 usable, closely graduated combinations of digging-wheel and crawler speeds, putting at his command always the *right* combination of digging power and speed for every soil and terrain, for every digging condition.

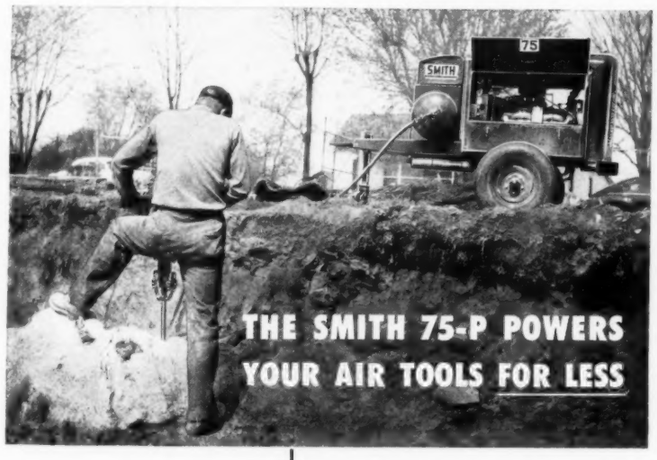
Send now for Folder V-616 fully describing this valuable Cleveland Trencher advantage.

The CLEVELAND TRENCHER Co.

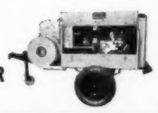
20100 St. Clair Ave.
Cleveland 17, Ohio

Good ..... Everywhere

For more facts, use Request Card at page 18 and circle No. 332



SMITH 120-P COMPRESSOR



SMITH COMPRESSORS ARE IN USE THE WORLD OVER

SMITH 45-P COMPRESSOR

Ask any Smith Compressor owner about economy! He'll tell you how the Smith 75-P replaces big compressors on scores of jobs—*adds to job profits!* The 75-P operates one heavy-duty paving breaker—two medium-duty paving breakers—or one 45-lb. rock drill. Nearly all engine and compressor parts are instantly available at reasonable cost from your Dodge Truck dealer. The 75-P is powered by a Chrysler Industrial Engine, using 3 cylinders for power, 3 for compression. Designed for high compression with large valve area, smooth carburetion. Super-finished bearings and pistons; water-jacketed discharge area. *Send coupon for free literature.*

WRITE FOR FREE LITERATURE

GORDON SMITH & CO., Inc.
483 College St., Bowling Green, Kentucky
Rush free literature on the Smith 75-P ☐ 120-P ☐ 45-P ☐ (Check one or all.)

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ADDRESS_____

CITY_____ ZONE_____ STATE_____

For more facts, use Request Card at page 18 and circle No. 330

New scraper self-loads with elevator mechanism

The Johnson elevating scraper is a self-loading unit featuring a PTO-driven elevator that moves material from the cutting blade up and into the scraper bowl. The material is loaded in a pulverized condition, and can be spread evenly with the depth of spread determined by hydraulic control of the dumping mechanism, according to the company.

The Johnson Mfg. Co. announces an elevating scraper available in 5, 8, and 11-cubic-yard capacities.

With this machine, material to be loaded is carried from the cutting blade by slats which bite into the soil and elevate it up into the scraper bowl. One of the advantages of this design, stressed by the company, is that no more power is required to load the last yard of soil than is necessary for the first.

The material is loaded in a pulverized condition, and can be spread evenly with a depth of spread determined by hydraulic control of the dumping mechanism. The leading edges of the dumping sections may be used to grade or plane.

Elevator slat attachments double the width of the slats and prevent the soil from rolling over them, thus eliminating the necessity of loading part of the material several times.

According to the manufacturer, under ordinary conditions it takes approximately one minute to load the bowl of this scraper. Since both scraper and tractor are mounted on rubber, fast turn-around circles are achieved on long or short hauls.

For further information write to the Johnson Mfg. Co., Dept. C&E, 718 28th St., Lubbock, Texas, or use the Request Card at page 18. Circle No. 97.

Tank-type engine heaters adapted for 220 volts

Two models of the firm's Zero-Start tank-type engine preheaters have been adapted for usage with 220-volt electrical supply, the Phillips Mfg. Co. announces.

The two heaters altered for use with heavier current are the U-850 (850 watts) and the U-1300 (1300 watts).

The new heavy-duty models are equipped with 5-foot three-pronged cords. Applicable in all liquid-cooled engines, according to the manufacturer, these external tank heaters heat and circulate engine coolant to provide rapid warmth inside the cab, as well as throughout the block.

For further information write to the Phillips Mfg. Co., Dept. KP, Dept. C&E, 2816 Aldrich Ave. S., Minneapolis 8, Minn., or use the Request Card at Page 18. Circle No. 12.

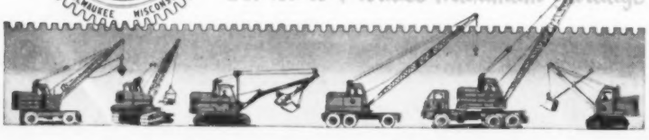
• UNIT equipment was chosen by the contractor for digging this 25,000 yard excavation for a new Federal Reserve Bank Building in the heart of Salt Lake City. Quality, simplicity of design, economical operation and low maintenance costs are among the many reasons why contractors prefer UNIT.

UNIT Excavators are available in ½ to ¾ yard sizes . . . Cranes up to 35 tons. Crawler, Truck or Mobile . . . Gas or Diesel. Write for literature.

UNIT CRANE & SHOVEL CORPORATION
6309 W. Burnham Street • Milwaukee 14, Wisconsin

UNIT CRANE & SHOVEL CORP. UNIT MILWAUKEE WISCONSIN

Geared to Produce Maximum Haulage



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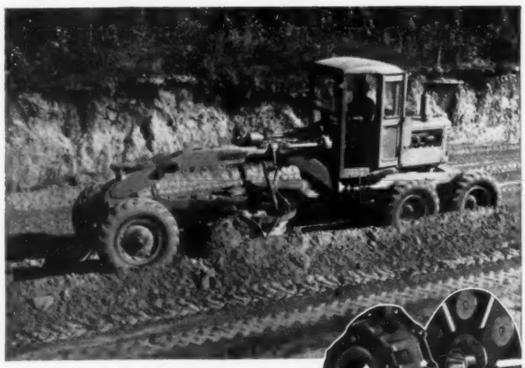
ROCKFORD



MORLIFE® CLUTCHES

Keep Heavy-Duty Machines
400% More Hours ON the Job
90% Less Time IN the Shop

MORLIFE clutches serve from four to ten times longer than previous types of friction clutches using organic facing materials. *Adjustments and plate replacements have been reduced to one-tenth those required by previous clutches.* The longer on-the-job hours and increased pay loads which MORLIFE clutches make possible furnish a competitive advantage for machines in which these NEW clutches are used. Increased clutch life results in decreased operation cost of vehicles or equipment.

BW SEND FOR THIS HANDY BULLETIN
Gives dimensions, capacity tables and complete specifications. Suggests typical applications.

ROCKFORD Clutch Division BORG-WARNER
314 Catherine St., Rockford, Ill., U.S.A.
Export Sales Borg-Warner International — 36 So. Wabash, Chicago 3, Ill.

Small Spring Loaded

Heavy Duty Spring Loaded

Oil or Dry Multiple Disc

Heavy Duty Over Center

Power Take-Offs

Speed Reducers

CLUTCHES

For more facts, use Request Card at page 18 and circle No. 334

This 4-axle 8×6 unit, designated Model C86-707, features driving power to the front axle of a front tandem and to both axles of a rear tandem. Equipped with a separate engine-type 8½-cubic-yard mixer, the truck can carry concrete loads up to 10 cubic yards.

Ready-mix concrete truck has 10-yard capacity

A 4-axle 8×6 ready-mix concrete truck designed with driving power to the front axle of a front tandem and to both axles of a rear tandem is offered by the Four Wheel Drive Auto Co. The new unit is designated Model C86-707.

Equipped with a separate engine-type 8½-cubic-yard mixer, the new tilt-cab truck reportedly can carry concrete loads as great as 10 cubic yards. It utilizes FWD's torque-proportioning center differential to distribute one-fifth of the drive-line torque to the forward axle of the front tandem, and the remaining four-fifths of the torque equally to the two driving axles of the rear tandem.

The double-tandem vehicle has a non-powered steering axle behind the foremost driving and steering axle for additional load capacity and flotation, the manufacturer reports.

For further information write to the Four Wheel Drive Auto Co., Dept. C&E, Clintonville, Wis., or use the Request Card at page 18. Circle No. 115.

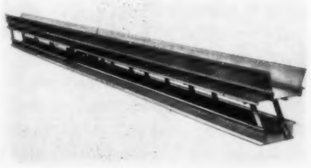
New shaker conveyor is multipurpose unit

The Syntron Co. announces a new shaker conveyor designed for high-speed conveying of most bulk materials.

Fitted with heated or stepped troughs, this unit will dry, preheat, or cool materials in transit, according to the manufacturer. With screen decks, it simultaneously scalps, sizes, or dewaters and conveys.

This multipurpose unit, consisting of two sections equal in length, is approximately 50 feet long. Two or more units may be combined to make a conveyor of any length.

For further information write to the Syntron Co., Dept. C&E, 227 Lexington Ave., Homer City, Pa., or use the Request Card at page 18. Circle No. 116.



Syntron new shaker conveyor.

Direct-drive chain saw designed to cut downtime

A new direct-drive chain saw is available from Hoffco, Inc.

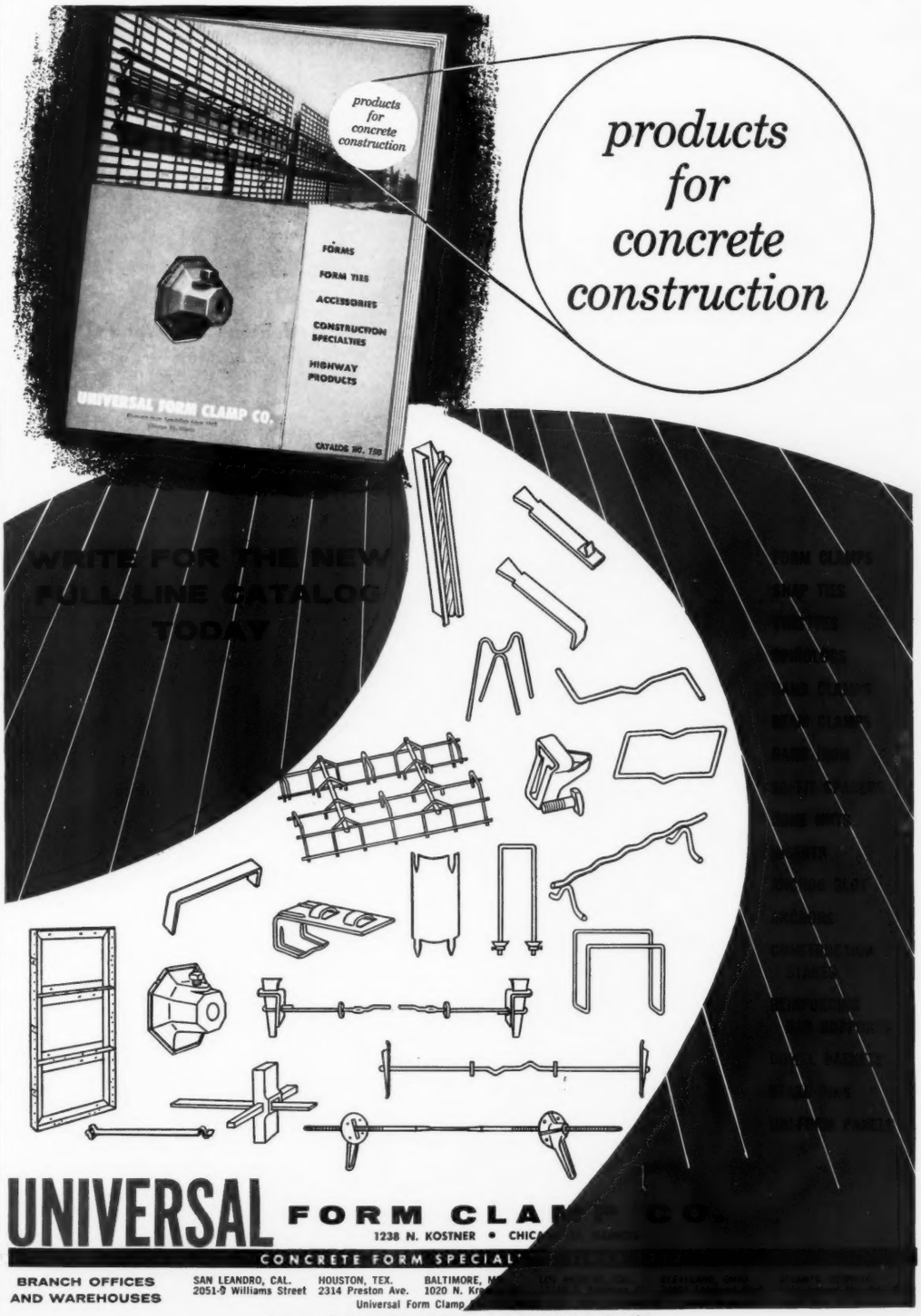
Designated Model 88M, the saw is powered by a West Bend 6.45-cubic-inch-displacement, long-stroke, 2-cycle engine, complete with all-position carburetor and high-tension magneto. It is available in three chain speeds (2,200, 2,300, and 2,650), with chain bars up to 36 inches and bow bars of 15 and 18 inches.

A feature of the unit is its centered handle control and thumb-button oiler, said to permit balanced straight line cutting. Also, to reduce downtime in the field, all copper fuel and oil lines are eliminated.

The company further points out that when the drive sprocket on the Model 88M is worn on its outer edge, it need not be discarded: the user simply removes the bar, takes out the spacer, replaces the bar, and the machine is ready for work again.

The Model 88M features a new shatterproof Hoffco alloy, and is four pounds lighter than the standard direct-drive Model 88.

For further information write to Hoffco, Inc., Dept. C&E, 411 N. Eighth St., Richmond, Ind., or use the Request Card at page 18. Circle No. 52.



For more facts, use Request Card at page 18 and circle No. 335

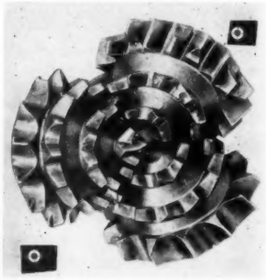
This tamper attachment for Schield Bantam power crane-excavators reportedly offers 80 to 100 per cent compaction at a maximum penetration of 3 feet. It is quickly interchangeable with any of the firm's other attachments. Bantam's power boom hoist and precision control are said to allow the operator to control drops from 1 to 10 feet for safe, sure operation. For further information write to the **Schield Bantam Co.**, Dept. C&E, Waverly, Iowa, or use the Request Card at page 18. Circle No. 80.

Air-blast drilling bits offered in two types

Air-blast drilling rotary bits, using techniques similar to those used in oil fields, are offered by the Chicago Pneumatic Tool Co.

These three-cone units are available in two types, standard and jet.

In the standard models, the air blast passes through the bit center to



flush the bottom of the hole. It circulates cuttings in and around the bit and outside the drill stem to the surface.

In addition to the center blast, three external nozzles direct high-pressure air jets toward the perimeter of the hole bottom in CP jet models. This reportedly jars cuttings loose and boosts them toward the surface when difficult hole-cleaning conditions are present or where hole depths are extreme.

The bits are available for every type of formation. Tooth designs varying in length, shape, and spacing on each cone determine the cutting action of the bit on the bottom. Bits with long, sharp, widely-spaced teeth are for use in the softer formations. For the hardest formations, a bit with short, husky, close-spaced teeth exerts a crushing, grinding action and is able to withstand the extra loading (down pressure) required by hard-formation operations, according to the manufacturer.

For further information write to the Chicago Pneumatic Tool Co., Dept. C&E, 6 E. 44th St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 4.

Machine adds, subtracts in fractions of an inch

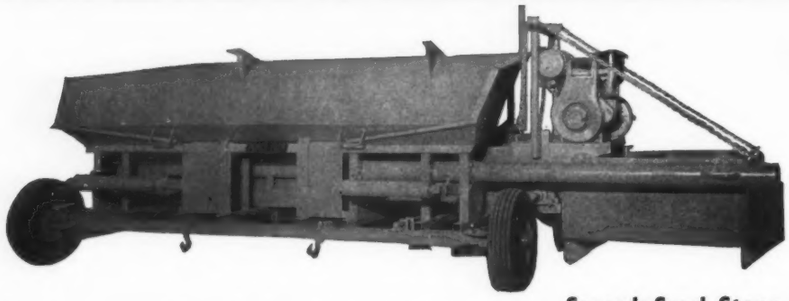
A portable adding machine that adds and subtracts any fractional parts of an inch—1/16, ⅛, ¼, or ½—is announced by the Victor Adding Machine Co. When a total is taken, a true answer of the total feet, inches, and fractions of inches is printed, with the tape showing all essential figures of the problem and answer.

The unit has a listing capacity of 99,999 feet, 11 15/16 inches, and a totaling capacity of 999,999 feet, 11 15/16 inches.

The machine is available both in hand and electric models.

For further information write to the Victor Adding Machine Co., Dept. C&E, 3900 N. Rockwell St., Chicago 18, Ill., or use the Request Card at page 18. Circle No. 26.

Approved for Road Widening and Road Shoulder Jobs



Dependable Accurate Fast

Spreads Sand, Stone and Asphalt!

Word is spreading fast about the effectiveness and economy of this machine: 9 h.p. Wisconsin engine powers conveyor belt to rapidly discharge aggregate or asphalt from rugged 8 ft. hopper. Heavy steel plate side box with strike-off blade is adjustable from 2-5 ft. Rubber-tired wheels swing parallel to hopper for easy towing. **POWER-PACK** has a simple hitch for any standard dump truck or trailer dump. Can be adjusted for left or right discharge.

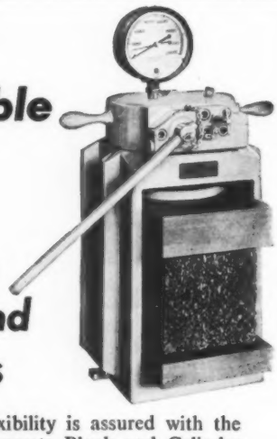
POWER-PACK lays material uniformly and with clean edges—keeping hand work to a minimum. Only one operator is needed while spreading material at walking speed.

Write or phone for full details — You'll be glad you did!

POWER-PACK CONVEYOR CO.
(Glenville 1-7670)
13910 ASPINWALL AVE. CLEVELAND 10, OHIO

For more facts, use Request Card at page 18 and circle No. 336

Now! a Portable Tester for Concrete Blocks and Cylinders



Complete flexibility is assured with the portable Olsen Concrete Block and Cylinder Testing Machine. Loads of up to 200,000 lbs. are applied manually with comparative ease by means of the self contained hydraulic loading system. Standard concrete blocks up to 9″ x 9″ x 18″ and standard 6″ x 12″ concrete cylinders are tested with equal ease. Rugged and compact, this tester is ideal for use in the lab or in the field.

Write for information.

TINIUS OLSEN TESTING MACHINE CO.
2130 Easton Road • Willow Grove, Pa.

For more facts, circle No. 337

Keep Cool, mister! with ARCTIC BOY portable water coolers

- Rugged Construction . . . good everywhere men work!
- Galvanized inset, hot dipped *after* forming for flaw-free finish!
- Large top opening, easy to ice, fill and clean.
- Send for complete information and booklet "Care and Use of Your Cooler." Write Dept. C-22.

THE SCHLUETER MFG. CO. • ST. LOUIS 7, MO.

For more facts, circle No. 338

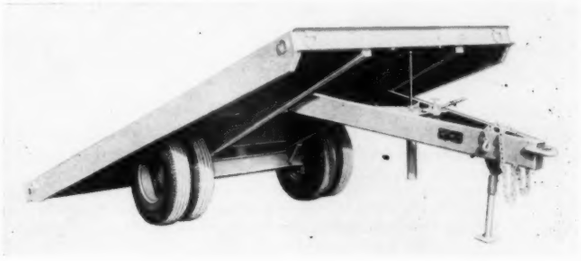
Bring out new line of equipment trailers

A new line of equipment trailers is announced by the Miller Tilt-Top Trailer Co.

Of chief interest in the line of "J" models (which replace the former "B" line) and "H" models (replacing the former "A" or "F" implements) are deep side channels that provide extra support along the edges for heavier-tracked rigs and wide-treaded implements. Over-all frame strength has been increased, as has the ease of tilting for loading and unloading, according to the manufacturer.

The heavier-built "J" line includes three models of 6, 8, and 10-ton capacities, equipped with 2-inch oak platforms in 8×14-foot standard sizes, and 8×16 or 8×18-foot optional sizes. The "H" model is a 4-ton all-purpose unit.

For further information write to the Miller Tilt-Top Trailer Co., Dept. C&E, 450 S. 92nd St., Milwaukee 14, Wis., or use the Request Card at page 18. Circle No. 120.



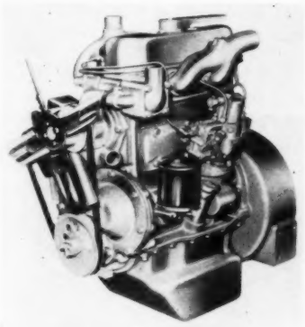
Over-all frame strength has been increased on the Miller Tilt-Top line, as well as the ease of tilting for loading and unloading equipment, according to the manufacturer. ◀

New 3-cylinder engines fit varied applications

A new series of 3-cylinder gasoline and diesel engines featuring both unit and part interchangeability is announced by the Hercules Motor Corp.

The overhead-valve gasoline engines are designated GO Series, while the direct-injection diesels are known as DD Series.

In these lightweight, high-speed units, cylinder blocks not only are interchangeable between gasoline and diesel units of like size, but are so designed that they can be turned end for end and the flywheel housing and



gear cover bolted to either end, permitting the power to be taken from either end of the engines. In addition, this permits the shifting of manifolds and accessories to either right or left-hand side.

A special arrangement on these engines is the common mounting for the distributor in the case of gasoline engine and the single-plunger fuel-injection pump on the diesel. Thus, the distributor and fuel-injection pumps are to be found in identical positions on the two types of power plants.

For further information write to the Hercules Motor Corp., Dept. C&E, 101 11th St. S. E., Canton, Ohio, or use the Request Card at page 18. Circle No. 99.

For more facts, circle No. 339 →

CALIFORNIA — Near Culver City this 30-B Transit Crane handle 48-in. ID concrete pipe for a new water line. The 7-mile system being constructed to carry Colorado River water to Culver City. Wor is maintained at a steady clip despite heavy traffic along a rou that includes 14 tunnels from 40 to 300 feet in length. Working wit the 30-B are a Bucyrus-Erie 22-B equipped with clamshell an Bucyrus-Erie 38-B hoe.

These Contractors Are Using 30-Bs to Turn Jobs into Profits . . . You Can Too!

More and more contractors throughout the countr are making money with new Bucyrus-Erie 30-Bs o their jobs. These men profit from the 30-B's air co trols for smooth, big output working cycles; easy se vicing and automatic lubrication of many parts th provides more working time; large, cool runnin clutches and brakes that mean constant response t coordinate every machine function.

You, too, can turn jobs into profits with one of thes machines, or any other size in ⅜- through 4-yd. rang Ask your local Bucyrus-Erie distributor for details.

450E5

BUCYRUS ERIE

A Familiar Sign at Scenes of Progress

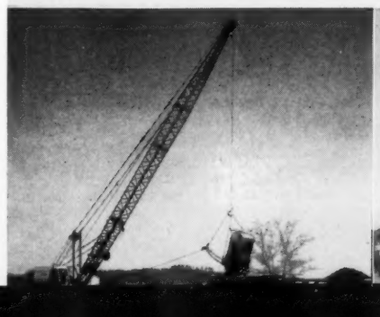
BUCYRUS-ERIE COMPANY • SOUTH MILWAUKEE, WISCONSIN

VIRGINIA — The owner liked the performance, economy, and d pendability of his 22-B shovel so well that he decided to buy th 30-B dragline. He uses the new machine to remove overburden dirt from a sand and gravel deposit near Annadale, Va. The dra line also loads sand and gravel into trucks for hauling to road a parking lot construction sites.

MINNESOTA — Equipped with 70-ft. boom, this 30-B dragline excavates in the yard of a paper company in Brainerd. This machine removes sand and clay for the installation of new papermaking equipment. The 30-B was also used to set steel on new plant construction.

WASHINGTON — This 30-B hoe does double duty for its owner during installation of a 15,000-ft. water line for the city of Tacoma. After digging a section of 5-ft. deep trench — and without any change of front ends — the 30-B lowers a section of pipe into the excavation. Trenching is through hard pan, rock, and clay. Not shown but working on the same job is a Bucyrus-Erie 38-B hoe.

CONNECTICUT — Teamed up with Bucyrus-Erie 22-B shovel, this 30-B dragli dredges sand and gravel to create a 7-ac lake for a housing project near Norwa This lake, a narrow stream before the pr ect started, has been enlarged by t removal of over 100,000 yards of materi As the 30-B spoils the material, the 22 loads it to trucks for removal to anoth location, where it is stockpiled for use the owner's other contracts.



The newest addition to the Ford Powermaster class of tractors is this Model 841, equipped with optional power steering and auxiliary over-under transmission for twelve forward and three reverse speeds. The Ford industrial loader and adjustable rear blade, as shown in the picture, add to the unit's versatility. According to the company, the Powermaster class now develops 44 drawbar horsepower, a boost of 10 per cent over former models. Powermasters are available in nine models. For further information about Ford Powermaster tractors, write to the Tractor & Implement Division, **Ford Motor Co.**, Dept. C&E, 2500 E. Maple Road, Birmingham, Mich., or use the Request Card at page 18. Circle No. 16.

To obtain further information on any of the products described in this section, circle the number given at the end of the item on the handy Request Card that is bound in at page 18 of this issue.

Offer coil hanger frame for supporting formwork

A new-type coil hanger frame for supporting formwork on beams is announced by The Dayton Sure-Grip & Shore Co.

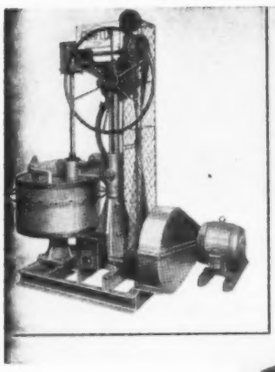
Of slip-fit design, the unit features a maximum capacity of 11,000 pounds.

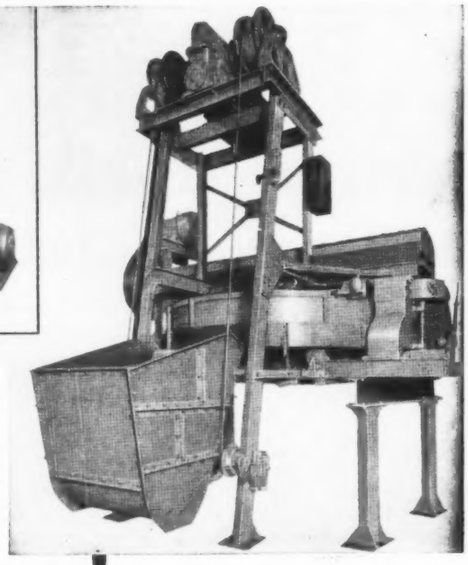
The new coil hanger frames are available in various widths, and with one or both coils on a 45-degree angle. A standard-style frame with the bolts threaded into the coils, as well as heavier types for extra-heavy hanging problems, is also available.

For further information write to The Dayton Sure-Grip & Shore Co., Dept. C&E, 301 Kercher St., Miamisburg, Ohio, or use the Request Card that is bound in at page 18. Circle No. 122.

CUMFLOW SCIENTIFIC MIXING SYSTEMS

Manufactured by THE LINER CONCRETE MACHINERY COMPANY, LTD., of Gateshead, England





CUMFLOW mixers are available in 6 sizes, from 2 cu. ft. lab. models to 50 cu. ft. production models. Stationary or portable, with or without skip. Power optional. Mixers furnished for electric, gasoline or diesel power operation.

The CUMFLOW SCIENTIFIC MIXING SYSTEM is designed and built expressly for the precast and prestressed concrete industries. Using this system you can obtain from 15 to 40 uniformly mixed batches of concrete per hour. CUMFLOW mixes any type concrete desired—slump, plastic or wet mix, lean or rich mix, fine or coarse mix, light or heavy mix—with 100% efficiency and uniformity.

The CUMFLOW SCIENTIFIC MIXING SYSTEM consists of a mixer star supported eccentrically over the mixing pan. The star revolves at a relatively high speed. Blades attached to the star are arranged so as to obtain the maximum number of points of intersection during revolution. Batched materials are fed continuously to the mixing star by the pan's revolutions and are mixed evenly and thoroughly in a matter of seconds. Further mixing action is obtained by fixed side blades. This unique system gives an absolutely clean pan after each discharge—no part of the mix is carried over to the next batch.

The CUMFLOW SCIENTIFIC MIXER SYSTEM was perfected after years of research to meet a growing demand by engineers for a more intensive mixing element which would give them complete control of the product at all stages . . . a feature not obtainable in conventional-type mixers.

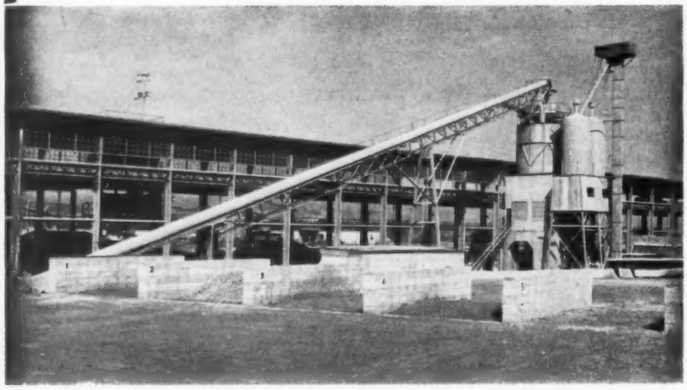
One user of this system, with a cement bill of $1,000,000 a year, says: "On tests, we have found Mixer A gave us 4,200 psi; the CUMFLOW gave us 6,000 psi concrete. We reduced the cement content in the CUMFLOW by 25% and were able to obtain 5,000 psi concrete. We have also obtained concrete of 10,000 to 11,000 psi in this mixer.

The CUMFLOW SCIENTIFIC MIXERS, manufactured by the Liner Concrete Machinery Co., Ltd., Gateshead, England, are built on the lines of a machine tool. They are not to be confused with conventional-type mixers. Available on a world-wide basis, with several parts depots maintained in America for prompt replacement service.

To realize savings of from 10% to 25% on cement costs, and to produce uniform mixes every time, write us, advising in cu. yds., the production needs per hour of your plant. We will promptly forward details of the size mixer best suited to your needs.

CHECK THESE IMPORTANT ADVANTAGES

- Every batch uniform; no variations whatsoever
- Greater strength concrete with minimum cement content
- Balling or segregation impossible
- Self-cleaning pan
- Up to 11,700 psi concrete possible
- From 10% to 25% savings in cement content



The Basalt Rock Co., Inc., Napa, California, is one of the many North American users of LINER CUMFLOW SCIENTIFIC MIXER SYSTEMS.

Distr. and agent in North America for the LINER CONCRETE MACHINERY CO., LTD., Gateshead, Eng.

A few choice dealerships in the United States are still available. Inquiries from qualified firms invited.

CUMFLOW
MIXER ENGINEERING

9201 SAN LEANDRO STREET
OAKLAND 3, CALIFORNIA
5961 YEW STREET
VANCOUVER 13, BRITISH COLUMBIA, CANADA

For more facts, use Request Card at page 18 and circle No. 340

NEW!

DANUSER SCARIFIER-SCRAPER and BLADE COMBINATION!

Cut earth moving costs and time with the famous Danuser Scarifier-Scraper and Blade Combination! It scarifies, rips, scrapes, spreads or levels faster . . . easier. One man can operate from tractor seat. Six or eight foot moldboard, quickly reverses for backfilling or drag-leveling. Scarifier teeth have replaceable points, shear pin protection. Alloy steel construction

WRITE TODAY FOR FREE LITERATURE

DANUSER MACHINE CO.
Manufacturers of Quality Equipment Since 1910

535-38 East 3rd Street • Fulton, Missouri

For more facts, circle No. 341

An 8-inch increase in digging depth brings the 705-B Runabout ditcher to a 56-inch maximum. The machine cuts the full range of widths—5½, 7½, and 10½ inches—previously featured.

Ditcher features 56-inch maximum digging depth

Barber-Greene's Model 705-B Runabout ditcher now features a maximum digging depth of 56 inches. The new, longer boom will cut 5½, 7½, and 10½-inch widths.

The Runabout also features Hydracrowd speed control; a 15-mph road speed; an optional hydraulically driven discharge conveyor; and a special differential which aids traction on mud or ice by feeding power to the drive wheel that is on the firmest footing.

For further information write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 76.

Rubber expansion joint eliminates road bumps

Development of a rubber expansion joint, said to permit as much as three inches of contraction and expansion in a highway while keeping the rubber flush with the surface, is announced by the B. F. Goodrich Industrial Products Co.

According to the manufacturer, the joint is made of a man-made rubber especially compounded to absorb movement of the highway in cold and warm weather. A series of metal plates is bonded to the rubber to carry the vertical loads imposed on the joint by traffic.

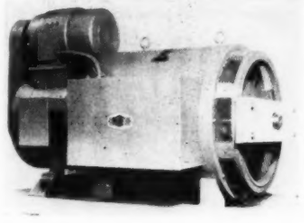
Anchored between road sections for a watertight seal, the joint is about 13 inches wide, extends the width of the highway, and fully fills the joint connection to its required depth.

For further information write to the B. F. Goodrich Industrial Products Co., Dept. C&E, 500 S. Main St., Akron, Ohio, or use the Request Card that is bound in at page 18. Circle No. 110.

New generator features engine-cranking motor

A 187-kva, 120/208-v, 3-phase, 60-cycle ac generator that features a dc engine-cranking motor mounted on the same shaft with the alternator is offered by the Kato Engineering Co.

This engine-starting motor has a cranking torque of 600 foot-pounds at

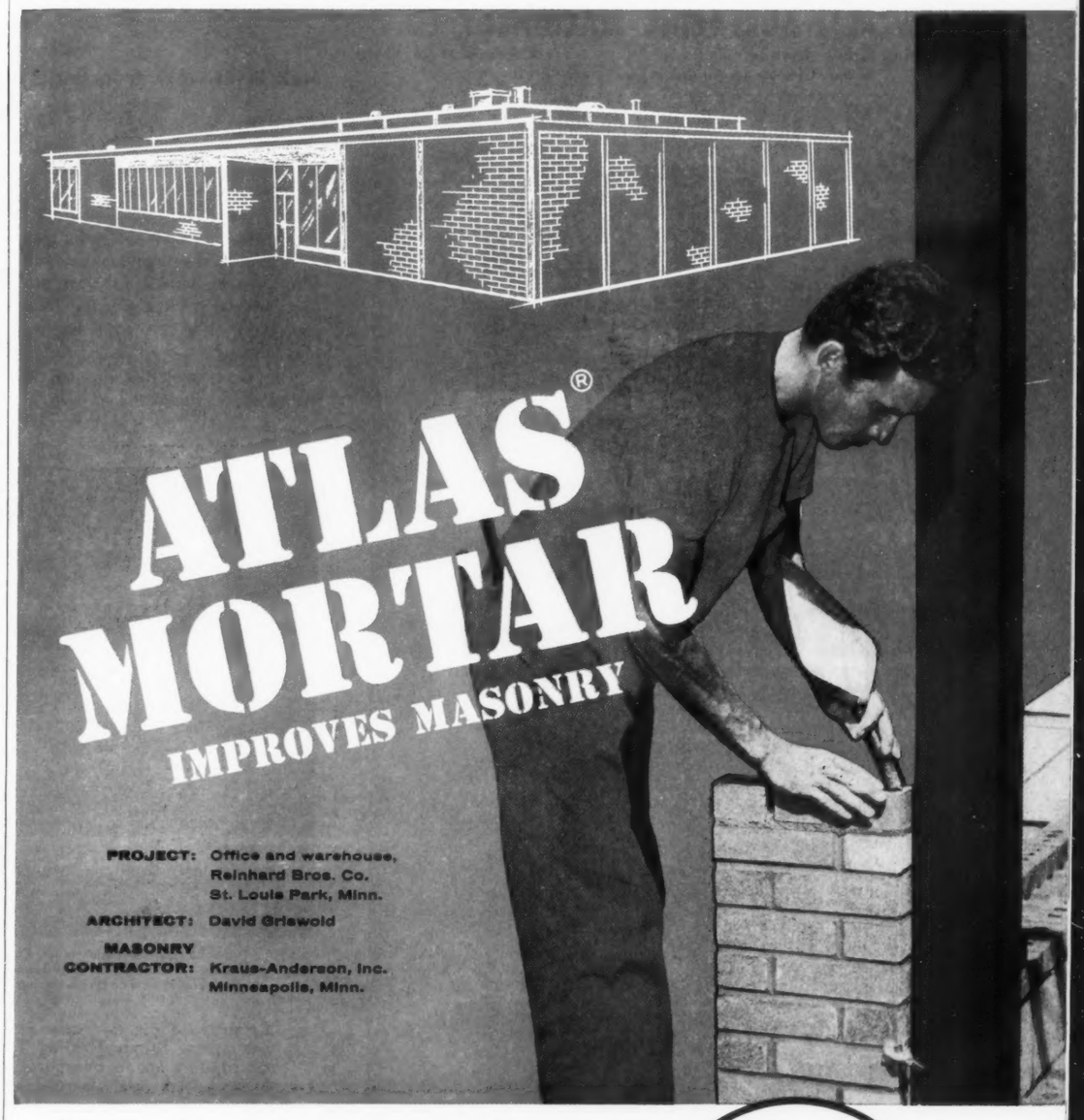


200 rpm and will crank continuously for five minutes. The necessary direct current in this case is supplied from storage batteries.

The direct-current exciter, which supplies dc to the field poles of the ac generator, is mounted on top of the cranking motor and is belt-driven.

For further information write to the Kato Engineering Co., Dept. C&E, 1415 First Ave., Mankato, Minn., or use the Request Card at page 18. Circle No. 103.

For more facts, circle No. 342 →


ATLAS®
MORTAR
IMPROVES MASONRY
PROJECT: Office and warehouse, Reinhard Bros. Co. St. Louis Park, Minn.
ARCHITECT: David Griswold
MASONRY CONTRACTOR: Kraus-Anderson, Inc. Minneapolis, Minn.

"... provides a more uniform, workable mortar,"

says R. J. Randolph, Mason Foreman
Kraus-Anderson, Inc.
Minneapolis, Minn.

- To produce serviceable, watertight masonry walls, the mortar mix must be plastic—and have adequate "board life."
- Masons on the job consistently confirm that ATLAS MORTAR cement *does retain* its workability—and gives higher yields.
- Quality-controlled manufacture of ATLAS MORTAR cement maintains high product standards, assuring uniform performance and appearance on every project.

(*Complies with ASTM and Federal Specifications.*)

Write for your copy of "Build Better Masonry," Universal Atlas, 100 Park Avenue, New York 17, N. Y.

UNIVERSAL ATLAS CEMENTS

USS

M-69 TRADE-MARK

UNIVERSAL ATLAS CEMENT COMPANY—member of the industrial family that serves the nation—UNITED STATES STEEL

OFFICES: *Albany · Birmingham · Boston · Chicago · Dayton · Kansas City · Milwaukee · Minneapolis · New York · Philadelphia · Pittsburgh · St. Louis · Waco*

"BERG"
CONCRETE
SURFACERS

for: bridges, highways, airport runways, dams, culvert, floors, walls.

Model H-8 and H-10 (above). Gasoline powered unit especially designed for surfacing concrete highways, runways, streets, floors. Includes exclusive power take-off for attaching "BERG" flexible shaft surfacing equipment. Model A (right) is lightweight, electric powered unit that suspends from operator's shoulder. Equipped with interchangeable heads and attachments for surfacing bridges, buildings, dams, culvert, walls or similar surfaces. Wire or write for details.

CONCRETE SURFACING MACHINERY CO.

4665 Spring Grove Avenue **Cincinnati 32, Ohio**

For more facts, use Request Card at page 18 and circle No. 343

PRESSTITE No. 99*

THE TOUGHEST, MOST ECONOMICAL SEALER AVAILABLE for AIRFIELD PAVING JOINTS

- Resists being BLASTED OUT by terrific jet engine thrust.
- Resists MELTING and BLOWOUT from super-elevated temperatures from jet after-burners.
- Resists SHOCK and IMPACT from heavy aircraft.
- Unaffected by jet fuel spillage.

WRITE for illustrated copy of Bulletin 99

- A Two-Component, Cold-Applied Sealer
- For Sealing Sawed and Formed Joints

* Meets Federal Specification SS-S-170, 23 May 1955

PRESSTITE Sealing Compounds — PRESSTITE-KEYSTONE ENGINEERING PRODUCTS COMPANY — KAP

A Division of AMERICAN-MARIETTA COMPANY
3788 CHOUTEAU AVENUE, ST. LOUIS 10, MISSOURI

For more facts, use Request Card at page 18 and circle No. 344

Product Parade

Designed for light trenching jobs, this one-man-operated unit will dig a 2¾-inch-wide trench, up to 20 inches deep. When cutting at maximum depth, digging speed reportedly averages 6 fpm.

New light-work trencher is one-man operated

The Arps Corp. announces a new, one-man-operated trencher, designated Arps Trench-Devil, Model Jr.

This compact unit is said to be extremely portable and is designed for a wide range of light trenching jobs. According to the manufacturer, one man can transport it to the job site, easily unload it from a truck, complete the work at hand, and load the unit unaided.

The Trench-Devil digs a trench 2¾ inches wide, up to 20 inches deep. At the 20-inch depth, digging speed reportedly averages 6 fpm; a 12-inch depth increases speed to 15 fpm.

A useful optional accessory is a curb attachment for digging inside of concrete curbings. When using this attachment the trencher's wheels are adjustable to 8 inches below normal, keeping the unit level with the curb.

For further information write to the Arps Corp., Dept. C&E, New Holstein, Wis., or use the Request Card at page 18. Circle No. 101.

"Our Etnyre 'Black-Toppers' and Hauling Tanks keep us sold"

Two of 22 Etnyre units operated by Central Asphalt Inc., New Hartford, New York. A 1250 FX 400 Style D "Black-Topper" is shown loading 350-degree bituminous material from an Etnyre Hauling Tank equipped with low-pressure burners.

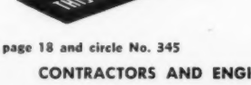
Recently adding two new Etnyre "Black-Topper" Distributors and a new Etnyre Hauling Tank to bring their fleet up to 16 distributors and 6 transports, Central Asphalt Inc. says, "The fine performance and dependability of the units we are operating keep us sold on Etnyre equipment."

Central Asphalt has used Etnyre "Black-Topper" Distributors and Load-Topper Hauling Tanks extensively in the application of all types of bituminous materials throughout their 11 years of successful operation in central, southern, and southwestern New York State.

Etnyre tanks are originally and exclusively designed and made for handling "heavy" materials. Over and over again, the superiority of these tanks in the special service for which they are designed has been proved by substantial users like Central Asphalt. Learn the details *before* you buy another unit! Call your Etnyre dealer or write E. D. Etnyre & Co., Oregon, Illinois, U.S.A.

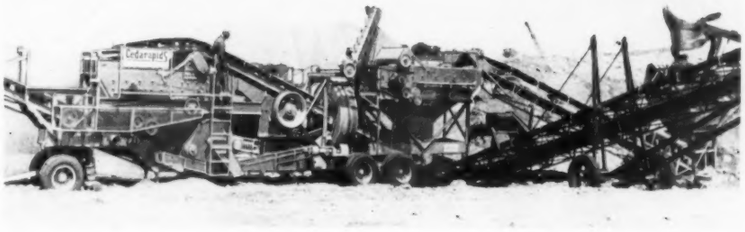
SEE YOUR ETNYRE DEALER

ETNYRE
"Black-Topper"
BITUMINOUS DISTRIBUTORS



For more facts, use Request Card at page 18 and circle No. 345

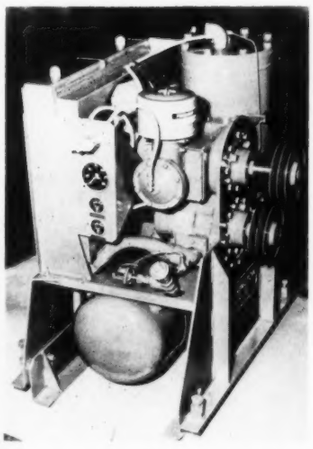
A new pre-screening attachment replaces the standard hopper on a portable Cedarapids Commander plant shown removing fines from gravel for the Dundee Sand & Gravel Co., Dundee, Ill. The new unit (also interchangeable with the Junior tandem plant) is designed for operation in pits with excessive fines, to increase plant capacity, and to make possible production of 100 per cent crushed material from a portable crushing plant. For further information about this pre-screening attachment, write to the **Iowa Mfg., Co.**, Dept. C&E, Cedar Rapids, Iowa, or use the Request Card at page 18. Circle No. 89.



Announce 125-cfm rotary power-takeoff compressor

A 125-cfm rotary power-takeoff compressor designed as a complete package unit is announced by the Worthington Corp.

The unit includes a two-stage oil-cooled rotary compressor, speed control, engine governor, oil cooler, air receiver, oil separator, and oil storage receiver all mounted on a common base plate.



Completely controlled from the cab by the driver, the compressor is belt-driven through a split power-takeoff.

The unit measures 38 inches long, 28 inches wide, and 39 inches high. Through an infinitely variable capacity control, it reportedly produces more air than conventional reciprocating machines.

For further information write to the Worthington Corp., Dept. C&E, 37 Appleton St., Holyoke, Mass., or use the Request Card at page 18. Circle No. 87.

Offer two new lubricants designed for rock drills

Two new lubricants compounded specifically for rock drills are available from the D-A Lubricant Co., Inc.

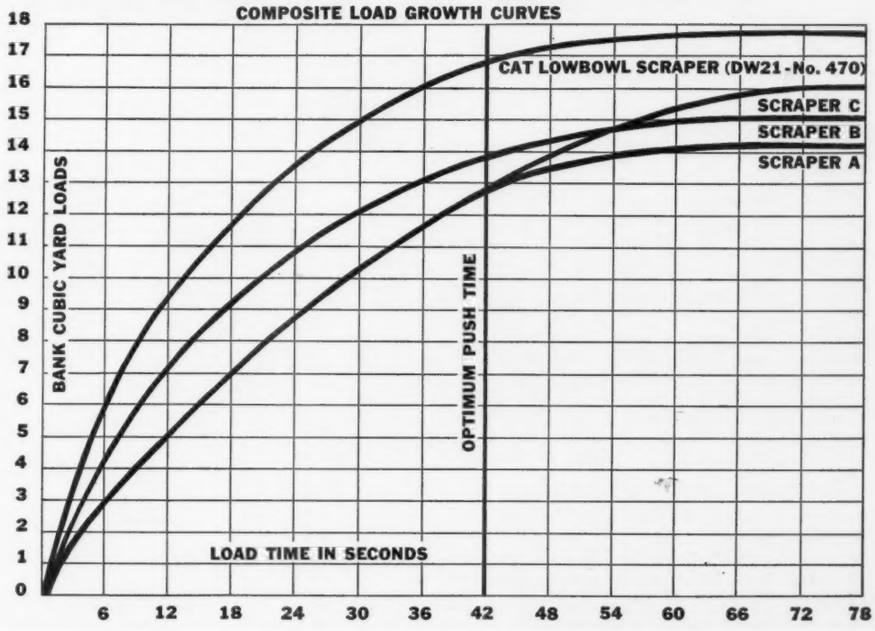
D-A Rock Drill Lubricant is designed for all rock drills. This lubricant has low pour characteristics and is said to be satisfactory for both summer and winter operation.

D-A Rock Drill 500 is compounded specifically for the Joy Model TM500 rock drill. It is a somewhat heavier product than D-A Rock Drill Lubricant, and is for above-freezing use.

For further information write to the D-A Lubricant Co., Inc., Dept. C&E, 1331 W. 29th St., Indianapolis, Ind., or use the Request Card at page 18. Circle No. 57.

For more facts, circle No. 346 →

CAT LOWBOWL SCRAPER LOADS BEST IN MISSOURI ON-THE-JOB TEST!


COMPOSITE LOAD GROWTH CURVES
CAT LOWBOWL SCRAPER (DW21-No. 470)
SCRAPER C
SCRAPER B
SCRAPER A
BANK CUBIC YARD LOADS
OPTIMUM PUSH TIME
LOAD TIME IN SECONDS
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
6 12 18 24 30 36 42 48 54 60 66 72 78

LOCATION OF JOB: Mark Twain Expressway west of McKelvey Road, St. Louis, Missouri.

SCRAPERS IN TEST	Struck capacity
Scraper A	15 cu. yd.
Scraper B	18 cu. yd.
Scraper C	16 cu. yd.
Cat LOWBOWL Scraper	18 cu. yd.

All manufacturers whose units were tested had representatives present to check weights and load time.

CONDITIONS: Material—wet yellow clay weighing 3,300 pounds per cu. yd. by density test. **Loading conditions**—cut was interspersed with soft, saturated mud pockets.

PROCEDURE: Each scraper was pushloaded on a slight upgrade by the same pusher. The pusher was timed and waved off at fixed periods, with the first wave-off at 30 seconds. Then the load in the scraper was weighed and the distance pushed measured. The wave-off periods were increased in 12-second intervals from 30 seconds to 78 seconds, with loads weighed and distances measured at each wave-off.

RESULTS: This chart of composite load growth curves reveals the superior "loadability" of the Cat DW21-No. 470 LOWBOWL Scraper. In the first 30 seconds of pushing, its load growth was extremely rapid. Load after load, its bowl filled evenly and completely. Most economical load time proved between 42 and 64 seconds, with the DW21-No. 470 LOWBOWL Scraper averaging 17.4 bank cu. yd. a load. Note that during the same time Scraper B (also 18 cu. yd. struck capacity) averaged only 15.1 bank cu. yd.—a clean-cut margin of 2.3 extra yards a load for the DW21-No. 470.

On the job, where performance separates the men from the boys, test after test proves that Caterpillar LOWBOWL Scrapers handle material at *lower cost per yard* than scrapers of other makes, regardless of capacity. One big reason is the LOWBOWL'S superior loading characteristics, charted above. According to the facts and figures, not "seat of the pants" judgment, LOWBOWL design pays off in more profitable production. Want to see these facts and figures? Ask your Caterpillar Dealer to show you reports of jobs in your area. See for yourself!

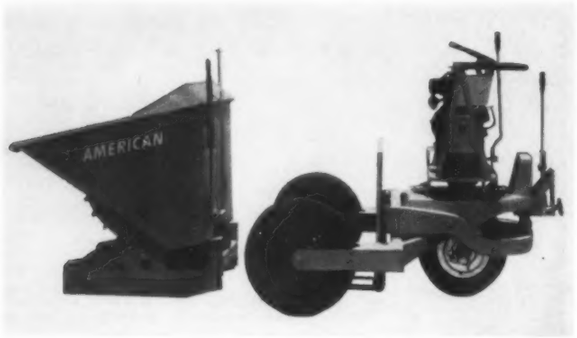
Caterpillar Tractor Co., Peoria, Illinois, U.S.A.

The Cat DW21-No. 470 LOWBOWL Scraper has a capacity of 18 cu. yd. struck and 25 cu. yd. heaped. Its exclusive LOWBOWL design loads more material faster because of less loading resistance.

CATERPILLAR

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.

USE CAT LOWBOWL SCRAPERS FOR LOWER COST PER YARD



The new Hopmobile is designed to carry materials of all kinds. As a fork lift, it will carry a payload of 1,500 pounds. The removable hopper is furnished as optional equipment.

Versatile power cart has fingertip control

A new combination fork lift-concrete cart is announced by the American Road Equipment Co. Designated Hopmobile, the unit is powered by a heavy-duty Continental 2.85-hp engine, and is designed to handle materials of all kinds. As a fork lift, it will carry a payload of 1,500 pounds; the removable hopper is furnished as optional equipment.

Featuring fingertip control, the cart is highly maneuverable, and its direction can be reversed by merely rotating the rear drive wheel. The hopper also has fingertip control for even, controlled dumping. The fork lifts are hydraulically powered.

For further information write to the American Road Equipment Co., Dept. C&E, 4201 N. 26th St., Omaha, Nebr., or use the Request Card at page 18. Circle No. 75.

Outsize density cone measures soils in place

A 12-inch-diameter sand density cone for in-place measurements of density of coarse-grained soils and gravels is offered by Soiltest, Inc.

The density is measured by the rate at which sand, funneled through opposed twin cones, is compacted into a hole in the fill-material. The uniformity and rate of flow of the sand may be observed by the test operator through a transparent acrylic plastic chamber which threads into the upper cone.

The large diameter of the apparatus permits the digging of a large density hole and facilitates the removal of material. It also makes possible a very high degree of accuracy in the density determination, according to the manufacturer.

The plastic chamber is formed of a Cadco cast acrylic tube, 12 inches in diameter with ½-inch walls. Exceptional weather resistance, toughness, and lightness of the Cadco chamber permits use under the most

DTA* *Concrete* DIAMOND CUTTING BLADES *Outperform* ALL OTHERS

HERE'S PROOF

Contractors throughout the United States are high in their praise of DTA'S* new, improved cutting blades. They report increased footage, faster cutting and lower labor costs. These blades have proved their worth under all working conditions and concrete mixtures. To find out how much you can reduce cutting costs . . . TEST CHECK a DTA* Concrete Diamond Cutting Blade now.

CONCRETE MACHINERY LTD

9530 EAST RUSH STREET
EL MONTE, CALIFORNIA
CUMBERLAND 3-5505

November 11, 1957

Mr. Jack Hartry
Diamond Tool Associates
940 East El Segundo Blvd.
Hawthorne, California

Dear Sir:

We like to compliment suppliers as well as criticize them on their products, therefore, we feel congratulations are in order to Diamond Tool Associates for a product well made.

As you know, we are one of the largest users of diamond blades in the concrete sawing business and have tried all competitive type blades. After extensive tests, we have found that your products consistently outperform all others tried, in speed of cut and cost per foot.

Again congratulations on your fine product and service rendered to the construction industry.

Respectfully yours,
CONCRETE MACHINERY LTD.
Hal Frost, General Manager

HF/cm

only DTA* has TRI-METRIC PROCESS

A DTA* exclusive . . . Tri-metric Process has made possible the producing of superior Diamond Cutting Blades . . . the one method that accurately fuses the fine quality diamond grit with the proper bond grading, exact concentration and depth of diamond section. You always get more from a DTA* Diamond Cutting Blade.

6 *big reasons why* DTA* *is your best buy*

1. Outstanding research and development.
2. Precise control of manufacturing process.
3. Highest quality diamond BOART.
4. The best in metal bondings.
5. Top quality steel centers.
6. Complete sales and field service by experienced personnel selected for their knowledge of your cutting problems.

*DIAMOND TOOL ASSOCIATES
BOART TOOLS
P.O. Box 85 • 940 E. El Segundo Blvd. • Hawthorne, Calif.

For more facts, use Request Card at page 18 and circle No. 347

BREAKER BALLS
of Ni-Hard and Semi-Steel

SPEED BREAKING, CRUSHING and DEMOLITION JOBS

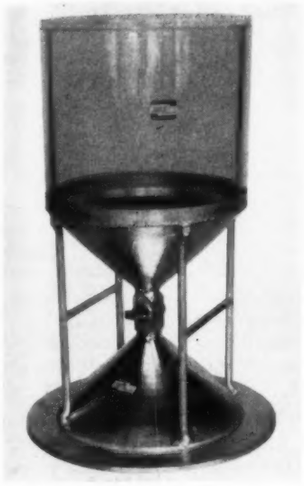
Eagle Breaker Balls available of tough semi-steel for regular jobs, and of abrasion resistant Ni-Hard nickel-chromium-iron alloy for toughest jobs. Pear shaped, with easily replaced hook. In five sizes: 1500 lbs. to 6500 lbs. (Ni-Hard up to 4000 lb. only). Spherical or Drop Ball available for use with cranes equipped with electro-magnets.

SINCE 1872
EIW
EAGLE IRON WORKS

SEND FOR BULLETIN 955
Describes Breaker Balls. Bulletin 1255 covers Eagle Pile Hammers and Line Weights. Catalog 58 gives complete information on Eagle Washing-Classifying-Dehydrating Equipment for aggregate, stone and ore.

EAGLE IRON WORKS, 159 Holcomb Avenue, Des Moines, Iowa.

For more facts, circle No. 348



rugged working conditions, the company claims.

The complete apparatus weighs 100 pounds.

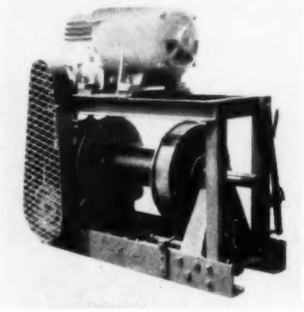
Smaller models of the cone, down to 4 inches in diameter, are also available.

For further information write to Soiltest, Inc., Dept. C&E, 4711 W. North Ave., Chicago 39, Ill., or use the Request Card at page 18. Circle No. 3.

Electrically run winches available in four models

A new line of electrically operated winches for use with cranes, booms, derricks, material elevators, draglines, and other equipment is announced by the Sasgen Derrick Co.

Four models are available for electric motors from 1½ to 35 horsepower. Line speeds are rated from 10 fpm with a 2,200-pound load, to 35 fpm with a 22,000-pound load. Cable capacities range from 320 to 885 feet, depending on size of the line, according to the company.



Winches rated above a 6,000-pound capacity have an automatic, oil-cooled, fully adjustable worm safety brake. Models rated at 5,000 and 6,000 pounds are equipped with an automatic, adjustable, self-energizing band-type brake. A sliding shrouded jaw draft tooth clutch is also standard on all models.

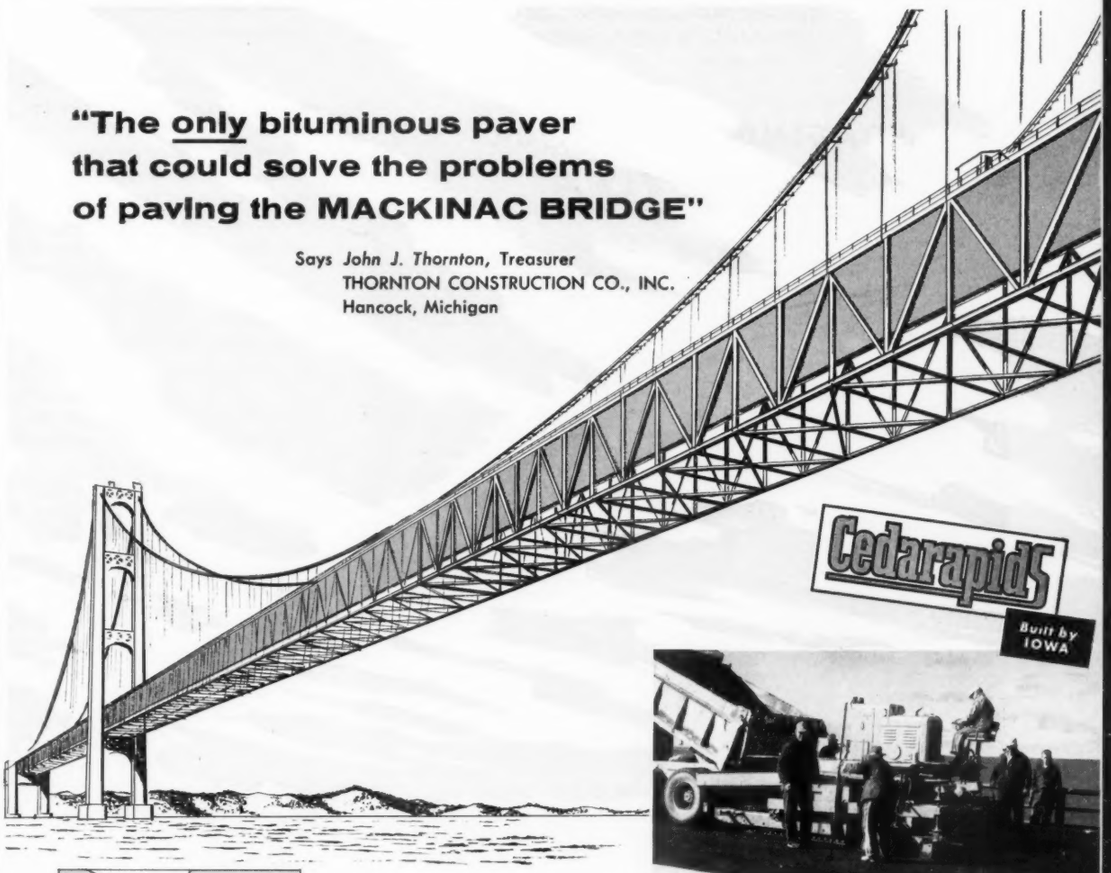
Worm gear housings are of a special ribbed design for light weight and strength, the manufacturer reports.

For further information write to the Sasgen Derrick Co., Dept. C&E, 3101 W. Grand Ave., Chicago 22, Ill., or use the Request Card at page 18. Circle No. 50.

On a mix-in-place, 6-mile resurfacing job on Route 50 east of Geddes, S. D., contractor G. H. Lindekugel & Sons, of Mitchell, S. D., tackled the large volume of required material with two Galion Model T-600 Grade-O-Matic motor graders equipped with 16-foot×29-inch moldboards to handle the 32-foot width. With the two machines employed as a team in tandem, an average of 220 tons of material was mixed and placed per hour, with traffic kept open at all times. A total of 144 working hours was required for this operation. For further information about the Model T-600 Grade-O-Matic, write to the **Galion Iron Works & Mfg. Co.**, Dept. C&E, Galion, Ohio, or use the Request Card at page 18. Circle No. 111.

"The only bituminous paver that could solve the problems of paving the MACKINAC BRIDGE"

Says *John J. Thornton*, Treasurer
THORNTON CONSTRUCTION CO., INC.
Hancock, Michigan



Cedarapids

Built by IOWA

Paving around scuppers, railing posts and expansion joints was a difficult problem on the Mackinac Bridge roadbed paving job, according to Thornton Construction Co., one of the leading contractors in Michigan and surrounding areas.

The 80 expansion joints used in the structure had lips extending 1½" above the concrete floor, which had to be flush with the finished bituminous surface mat. This problem was solved by Thornton's Cedarapids Bituminous Paver, which laid a smooth, even surface up to and away from these joints without excessive hand labor.

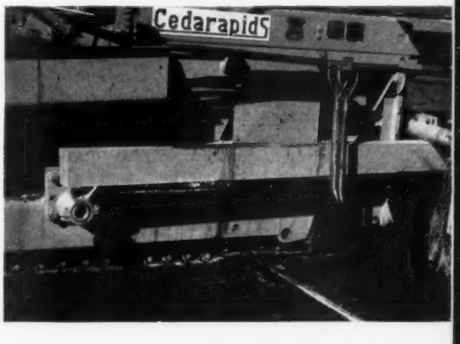
Says John Thornton, "We are very well sold on this machine as being the only machine that could have done this job. The roller path is very ingenious and was very helpful in our successful completion of this project."

Here is another instance where the "new concept of bituminous paving", exemplified by the exclusive features of the Cedarapids Paver, saved time and money for the contractor.

Write for complete information, or ask your Cedarapids Dealer about the profit-advantages of a Cedarapids Bituminous Paver on your next job.

(Above)—Note the expansion joint jutting from the concrete bridge floor in the foreground. Then note the smooth, even bituminous surface on either side of the joint in the paved lane.

(Below)—The exclusive Cedarapids oscillating rollers permit the crawler tracks to pass over the 1½" lips of the expansion joints and still keep the paving screed on a level plane.



IOWA MANUFACTURING COMPANY
Cedar Rapids, Iowa, U. S. A.
605
For more facts, use Request Card at page 18 and circle No. 349

This motor-grader attachment, designated Elegrader, is chiefly used in casting material for rebuilding roads, and for loading trucks which carry material to distant projects. When used in truck-loading, it reportedly can cast up to 1,500 yards per hour.

Motor-grader attachment casts material laterally

The Elegrader, an attachment for casting material laterally from Adams No. 660, 610, 550, and 440, and Caterpillar No. 12 motor graders, is available from Jebco, Inc.

The machine's chief use is for casting material for rebuilding roads, and for loading trucks which carry material to distant projects. The Elegrader normally loads up to 800 yards per hour; however, the company states, when used in truck-loading sandy loam it can cast up to 1,500 yards per hour.

The unit is available in basic conveyor lengths of 17½ and 19 feet. Optional 3-foot inserts can be added to provide any conveyor length required up to 23½ feet. An 11-foot insert, complete with tandem outrigger wheels, can be added to either basic conveyor, giving the operator adequate reach for canal work or any other work requiring long reach. The outrigger model, which is a 30-foot carrier with outrigger wheels, is recommended for high-production borrow-pit loading.

For further information write to Jebco, Inc., Dept. C&E, P. O. Box 362, Blair, Nebr., or use the Request Card at page 18. Circle No. 113.

New concrete vibrators feature one-man control

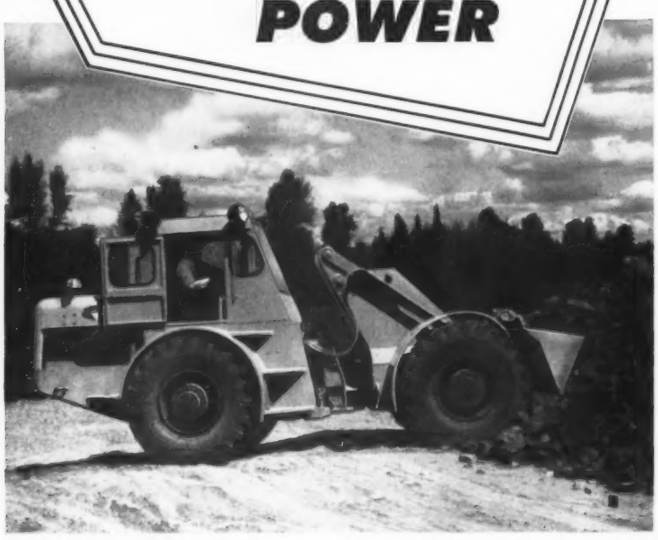
Two new concrete vibrators are announced by the Gardner-Denver Co.

According to the manufacturer, these vibrators—the 2½-inch-diameter Model CV-25 and the 3-inch-diameter Model CV-30—feature a double-duty flexible intake hose that permits one-man control and operation. Powered by a five-vane air motor, they have a flexible, bonded-rubber coupling between the motor and the unbalanced rotor, which reduces transmission of shock loads between these rotating parts.

The Gardner-Denver LO-12 line oiler is also provided as part of the complete unit; thus, the vibrator automatically shuts off if proper lubrication is not maintained. Both ends of the outside hose are enclosed for maximum protection.

For further information write to the Gardner-Denver Co., Dept. C&E, S. Front St., Quincy, Ill., or use the Request Card at page 18. Circle No. 56.

LOADING SHOT ROCK takes EXTRA POWER



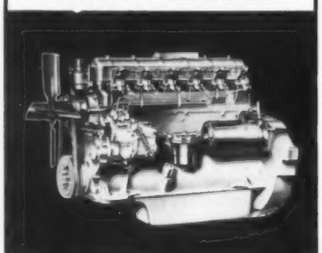
SCOOPMOBILE does it easily with

WAUKESHA Diesel

● Tough stuff to load—that shot rock! Takes a real loader with an engine that can pour on the power. With its Waukesha Diesel, and 100% breakout bucket action, this 1¼ cu. yd. LD 5P Scoopmobile handles a lot of yardage for Bowman Sand & Gravel Co., Albany, Oregon—steadily, smoothly, quickly. Four-wheel planetary drive gives power to spare. Power steering, power shift forward and reverse transmission, and 4-wheel power brakes lighten the work of the operator. Waukesha Diesels also give you easy starting, quick warm-up, snappy acceleration, with high fuel economy and most economical upkeep.

372

POWERING the SCOOPMOBILE



Waukesha 190-DLC Diesel—Six cylinders, 3⅜ x 4-inch, 265 cubic inch displacement. Send for descriptive bulletin 1411.

WAUKESHA MOTOR COMPANY, WAUKESHA, WISCONSIN

NEW YORK TULSA LOS ANGELES

For more facts, use Request Card at page 18 and circle No. 350

Hoffman 9" Bit needs no special equipment for drilling through 14" concrete floor.

HOFFMAN'S New-Concrete THIN WALL DIAMOND BITS

Go Through Reinforced Concrete In Record Time

Here's drilling news of the year for cost-cutting results on countless heavy construction jobs. Now—more than ever, Hoffman Diamond Bits assure greater drilling accuracy and economy. They cut time and costs on more than just the drilling too. They eliminate form-work on projects where openings are 14" or less.

Investigate the advantages of other Hoffman Bits that will help you speed foundation exploration for faster estimates.

Send for a copy of Hoffman's new catalogue—FREE

HOFFMAN BROS. DRILLING CO.
Box 426 Punxsutawney, Penna.
Drilling Experts Since 1902

For more facts, use Request Card at page 18 and circle No. 351

Mounted on this Galion Model 503 motor grader is a Jackson electric vibratory compactor. The independent gasoline engine and generator, for operating the compactor, are shown mounted on the rear end of the grader frame.

Newly designed grader mounts electric compactor

Galion is now offering its Model 503 motor grader and a Jackson electric vibratory compactor as a dual-purpose unit.

The vibratory compactor consists essentially of four 26-inch-wide electric vibrating compactors. The compactor workhead is connected by drawbars to the head block of the grader with, according to the manufacturer, the grader adequately protected against compactor vibration. Raising and lowering the compactor is done by hydraulic control from the grader operator's platform.

The independent engine and 7½-kva generator for supplying power to the vibrators are on the rear end of the grader frame. Galion points out that there is no interference with ordinary grader operations such as spreading material and surface smoothing.

For further information write to the Galion Iron Works & Mfg. Co., Dept. C&E, South St., Galion, Ohio, or use the Request Card at page 18. Circle No. 73.

Kit cuts tractor power loss at high altitudes

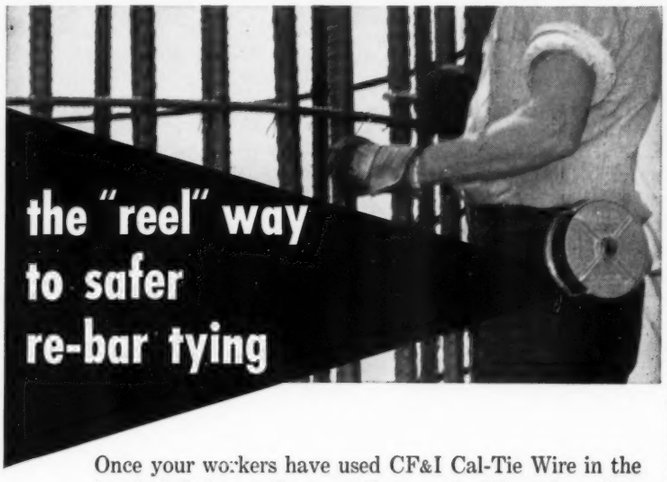
A normalizing kit for its D6 tractor, designed to eliminate the reduction of engine horsepower by operation at high altitudes, is available from the Caterpillar Tractor Co.

The new kit, which consists of a turbocharger and all manifolds needed to mount it on the tractor engine, overcomes the cause of high-altitude power loss, that is, insufficient oxygen to permit complete combustion of fuel. The turbocharger delivers air to the inlet manifold at greater than atmospheric pressure, permitting complete fuel combustion and restoring "sea level" horsepower up to a 10,000-foot altitude.

The normalizing kit does not increase the horsepower of the tractor while operating at sea level, but is effective only in providing the needed oxygen at high altitude to burn the same amount of fuel as at sea level. To assure that proper governor setting is maintained, the governor housing is sealed when the normalizing kit is installed.

The kit is also available for Models D7 and D8.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card that is bound in at page 18. Circle No. 22.



Once your workers have used CF&I Cal-Tie Wire in the handy belt-borne dispenser they are "sold" on its safety and convenience. For it eliminates the dangers associated with carrying clumsy shoulder coils.

Work in close quarters is made easier, for there is no cumbersome coil to catch on protruding objects—no loose wire ends to cause costly eye and face injuries—no kinky, half-used or discarded coils to trip workers.

On your next project try Cal-Tie Wire in the new CF&I handy reel dispenser. Learn how safe, efficient and economical it is to use. Cal-Tie Wire Coils weigh approximately four pounds and are available in 14- through 20-gage wire. For full details contact the nearest sales office listed below.

CF&I CAL-TIE® WIRE
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise Butte • Denver • El Paso • Ft. Worth • Houston • Kansas City • Lincoln (Neb.) • Los Angeles • Oakland Oklahoma City • Phoenix • Portland • Pueblo • Salt Lake City • San Francisco • San Leandro Seattle • Spokane • Wichita • WICKWIRE SPENCER STEEL DIVISION—Atlanta • Boston • Buffalo Chicago • Detroit • New Orleans • New York • Philadelphia • CANADIAN REPRESENTATIVES AT: Calgary • Edmonton • Vancouver • Winnipeg 5688

For more facts, use Request Card at page 18 and circle No. 352

3-WAY SOIL BLENDER!

Here's the one multi-purpose tool every contractor needs to speed his work and make him more money! Solving soil problems is a specialty of Rome Disk Plowing Harrows. Have you ever encountered these problems?

1 Dead, dry dirt on the fill that blades like ashes and packs like sawdust? Wet it down with your water trucks, then mix it deep with a Rome Disk Plowing Harrow to put it in good shape for specified compaction.

2 In-place materials to mix? Soil cement materials, stratas or lifts in fills can be readily turned into a compact, homogeneous fill by mixing and pulverizing with a Rome.

3 Too wet to work? Blend wet soil with dry materials, plow deep with a Rome Disk Plowing Harrow to dry out your fills and cuts.

See your Rome Dealer for complete details — he is also your Caterpillar Dealer.

ROME PLOW COMPANY, Cedartown, Georgia

Rome Disk Plowing Harrows
REG. U. S. PAT. OFF.

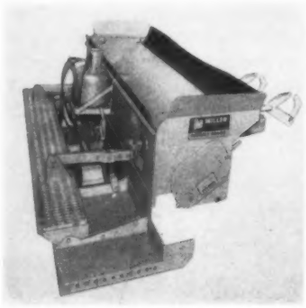
For more facts, use Request Card at page 18 and circle No. 353

Towed paver improvements include universal hitch

A universal hitch, side extensions to prevent spilling, and a stabilizing roller are new features on the 1958 Miller paver available from the Miller Spreader Corp.

The new hitch, adaptable on present Miller towed pavers, permits the machine to be hitched to single and tandem-axle trucks in a matter of seconds, according to the company.

The arms of the hitch adjust telescopically 18 inches, and are adjustable 16 inches horizontally, permitting the hitch to be placed on practically any truck axle.



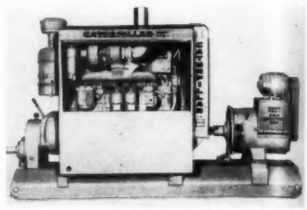
Three 6-inch extension plates for the sides and back of the paver box are provided with the new model. These slanting extension plates are designed to eliminate spilling.

The stabilizing roller mounts on the axle of the paver and prevents the machine from sinking below the desired level.

For further information write to the Miller Spreader Corp., Dept. C&E, 4020 Simon Road, Youngstown, Ohio, or use the Request Card at page 18. Circle No. 72.

Crusher-plant drive unit is electrical, portable

The Caterpillar Tractor Co. announces the Model D337 (Series F) electrical and mechanical drive unit, said to combine the best features of both common methods of crusher-plant drive into one package.



According to the manufacturer, the D337 simultaneously provides mechanical operation for crushers and electricity for flexible control of conveyors. Designed to handle plants in the 150 to 200-ton class, the new unit supplies variable horsepower through a reduction gear at the rear of the crankshaft and 60 kw from a generator mounted on the front.

The advantages of the D337 drive unit are listed as the flexibility of electric drive with resulting control of quality, plus the portability of mechanical drive.

For further information write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card that is bound in at page 18. Circle No. 15.

Transformer-type welder has diverter path design

A new industrial ac transformer-type arc welder of diverter path design is announced by the Hobart Brothers Co.

According to the firm, the diverter path control for adjustment of welding current provides five steps of coarse adjustment (range settings 1-2-3-4-5), with a rheostat for fine adjustment in each range. Extra secondary winding supplies current to the control rectifier, which is of standard selenium type—35 volts dc

NEW

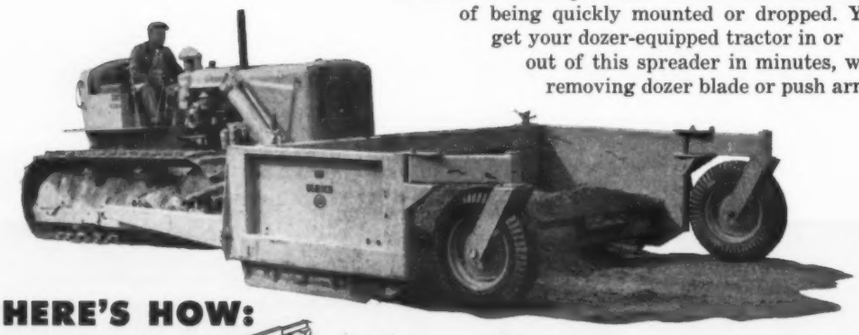
THE ULRICH DOZER SPREADER

Attaches to Caterpillar D6 - D7 - D8 Tractor Dozers.

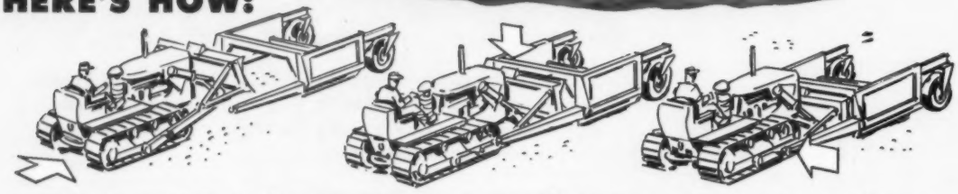
Nothing to remove — mounts in minutes.

Utilizes dozer blade for strike-off.

Here is a real time-saver with all the important features of other spreaders — but with the *advantage* of being quickly mounted or dropped. You can get your dozer-equipped tractor in or out of this spreader in minutes, without removing dozer blade or push arms.



HERE'S HOW:



1. Raise dozer blade to clear spreader push arms.

2. Move forward until blade clears push arms, then drop dozer to just above ground level.

3. Continue forward to engage trunnions with spreader push arms and until dozer blade drops into place on rear of spreader.

FEATURES:

Spreading depths — 0" to 24"
Spreading widths — 10' to 16'
(Wider or narrower widths available on order)
12' opening receives widest trucks
Swiveling, front end support wheels
All welded construction — high tensile steel plate (Man-Ten)

See your Caterpillar-Ulrich Dealer

ULRICH *Manufacturing Co.*
Roanoke, Illinois

Your Caterpillar-Ulrich Dealer can give you *more* profitable details on using your dozer to reduce original cost and mounting time. Call him or write direct for the Dozer-Spreader Fact File.

For more facts, use Request Card at page 18 and circle No. 354

BONDED EQUIPMENT BARGAINS

Immediate Shipment From Stock

VIBRATING SCREENS

For any screening operation, wet or dry. Sizes 2' x 4' to 5' x 14'; 1 to 5 decks. Write for Bulletins #1086 & #1087. **Priced from $443.00**

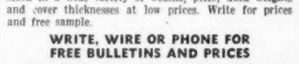
BUCKET ELEVATORS

Wide variety of sizes and types. Prices quoted on request. Write for Bulletin #1203.

TROUGHING IDLER CONVEYORS

Save up to 50% on complete conveyors. Fabricated for easy assembly on job-site. Made in any length or belt width. Equipped with 5" diam. idlers and return rolls, 20" diam. head and 16" diam. tail pulleys. Write for Bulletin #1138. **Priced from $554.00**

NEW CONVEYOR BELTING



Save up to 30%. We pay freight on shipments 200 pounds or over. Heavy duty 4 and 5-ply belting in stock in a wide variety of widths, plies, duck weights and cover thicknesses at low prices. Write for prices and free sample.

WRITE, WIRE OR PHONE FOR FREE BULLETINS AND PRICES

BONDED SCALE AND MACHINE CO.
45 BELLEVUE COLUMBUS 7, OHIO
PHONE Days: HI 4-2186 Evenings: AX 1-2213

For more facts, circle No. 355

for safe, low-voltage remote control.

No high voltage appears across any control coils, eliminating possibility of insulation breakdown or high voltage appearing under the rheostat handle, the manufacturer reports. This type of control eliminates the need for moving parts: core and coils are anchored in place for quiet operation and less maintenance.

Model TD-316-S is rated 300 amps at 40 volts with a welding range of 35 to 375 amps. Model TD-416-S is rated 400 amps at 40 volts ac with a welding range of 35 to 500 amps. Model TD-516-S is rated 500 amps at 40 volts ac with a welding range of 35 to 625 amps.

For further information write to the Hobart Brothers Co., Dept. C&E, Hobart Square, Troy, Ohio, or use the Request Card at page 18. Circle No. 109.

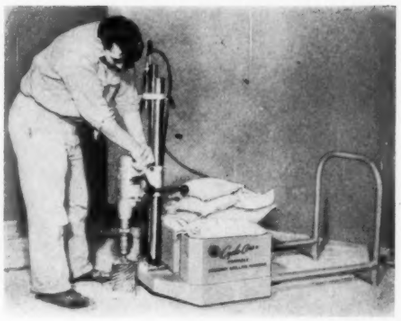
To obtain further information on any of the products described in this section, circle the number given at the end of the item on the Request Card at page 18.

Masonry drilling machine reduces drilling time

A new-type masonry drilling machine is available from the New England Carbide Tool Co., Inc.

Designed for use with Cyclo-Core carbide-tipped masonry bits, the rig practically eliminates set-up and knock-down time, and greatly reduces drilling time, according to the manufacturer.

This drilling machine is said to develop up to 1,000 pounds or more pressure on the cutting edges of the carbide-tipped bit, permitting holes up to 6 inches in diameter to be drilled in concrete with or without reinforcing rods. The rig can be easily used in tight corners, and all drilling is done without water.



Designed for use with Cyclo-Core carbide-tipped masonry bits, this masonry drilling rig from the New England Carbide Tool Co., Inc., reportedly can drill holes up to 6 inches in diameter in concrete with or without reinforcing rods.

For further information write to the New England Carbide Tool Co., Inc., Dept. C&E, 55 Commercial St., Medford 55, Mass., or use the Request Card at page 18. Circle No. 38.

THE DANUSER TERRA-SCOOP DOES MORE WORK AT LESS COST!

The Danuser Terra-Scoop moves more dirt faster and cheaper than any other unit of equal size! Scrapes, scarifies, levels, carries, dumps, bulldozes. One man operates hydraulic controls from tractor seat. Big half yard capacity. Replaceable cutting edges and six steel scarifier teeth. Rugged alloy-steel construction lasts longer—cuts maintenance costs. Easily attached or removed.

WRITE TODAY FOR FREE LITERATURE

DANUSER MACHINE CO.
Manufacturers of Quality Equipment Since 1910

535-38 East 3rd Street • Fulton, Missouri

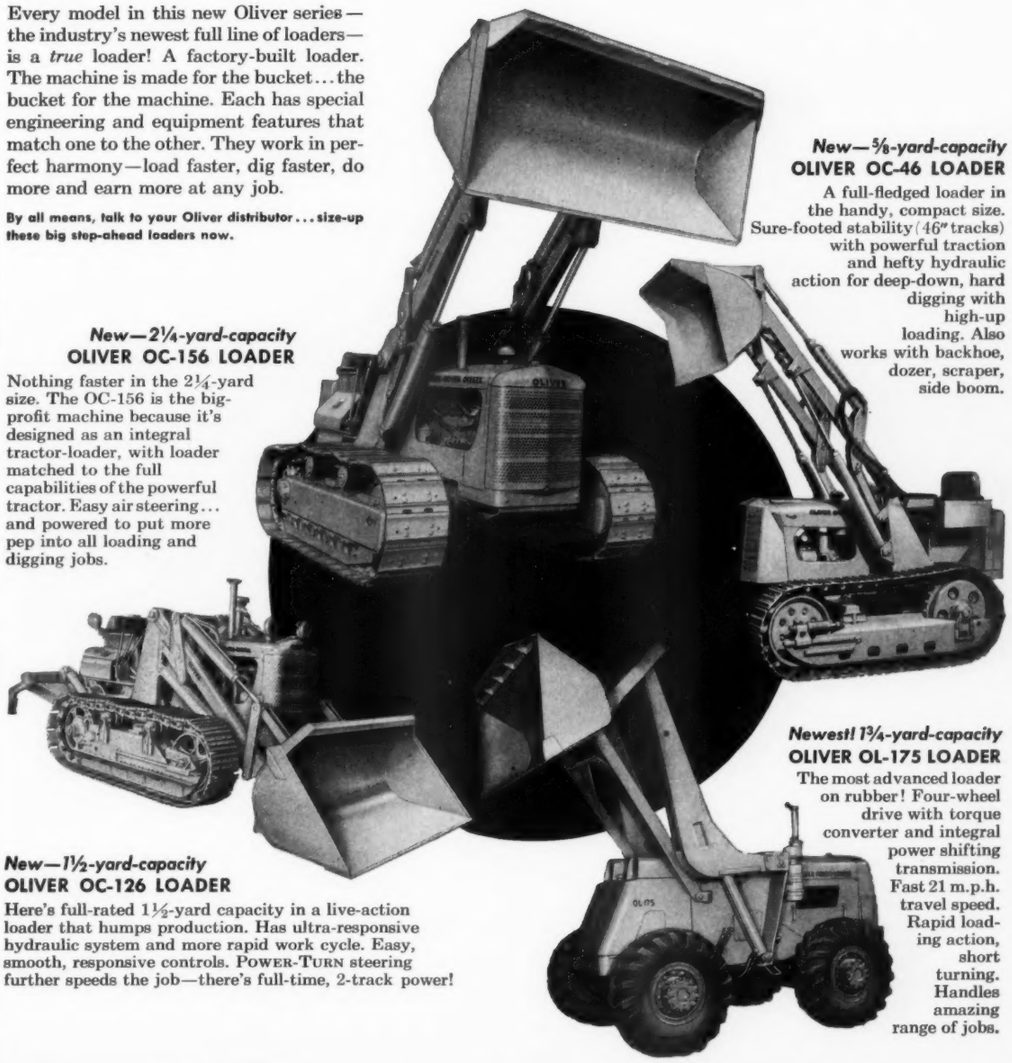
For more facts, circle No. 356

Whatever you want in loaders...by OLIVER

Faster, fuller loading because they're "unitized"... factory-built as complete loaders!

Every model in this new Oliver series—the industry's newest full line of loaders—is a *true* loader! A factory-built loader. The machine is made for the bucket...the bucket for the machine. Each has special engineering and equipment features that match one to the other. They work in perfect harmony—load faster, dig faster, do more and earn more at any job.

By all means, talk to your Oliver distributor...size-up these big step-ahead loaders now.



New—2¼-yard-capacity
OLIVER OC-156 LOADER
Nothing faster in the 2¼-yard size. The OC-156 is the big-profit machine because it's designed as an integral tractor-loader, with loader matched to the full capabilities of the powerful tractor. Easy air steering... and powered to put more pep into all loading and digging jobs.

New—5/8-yard-capacity
OLIVER OC-46 LOADER
A full-fledged loader in the handy, compact size. Sure-footed stability (46" tracks) with powerful traction and hefty hydraulic action for deep-down, hard digging with high-up loading. Also works with backhoe, dozer, scraper, side boom.

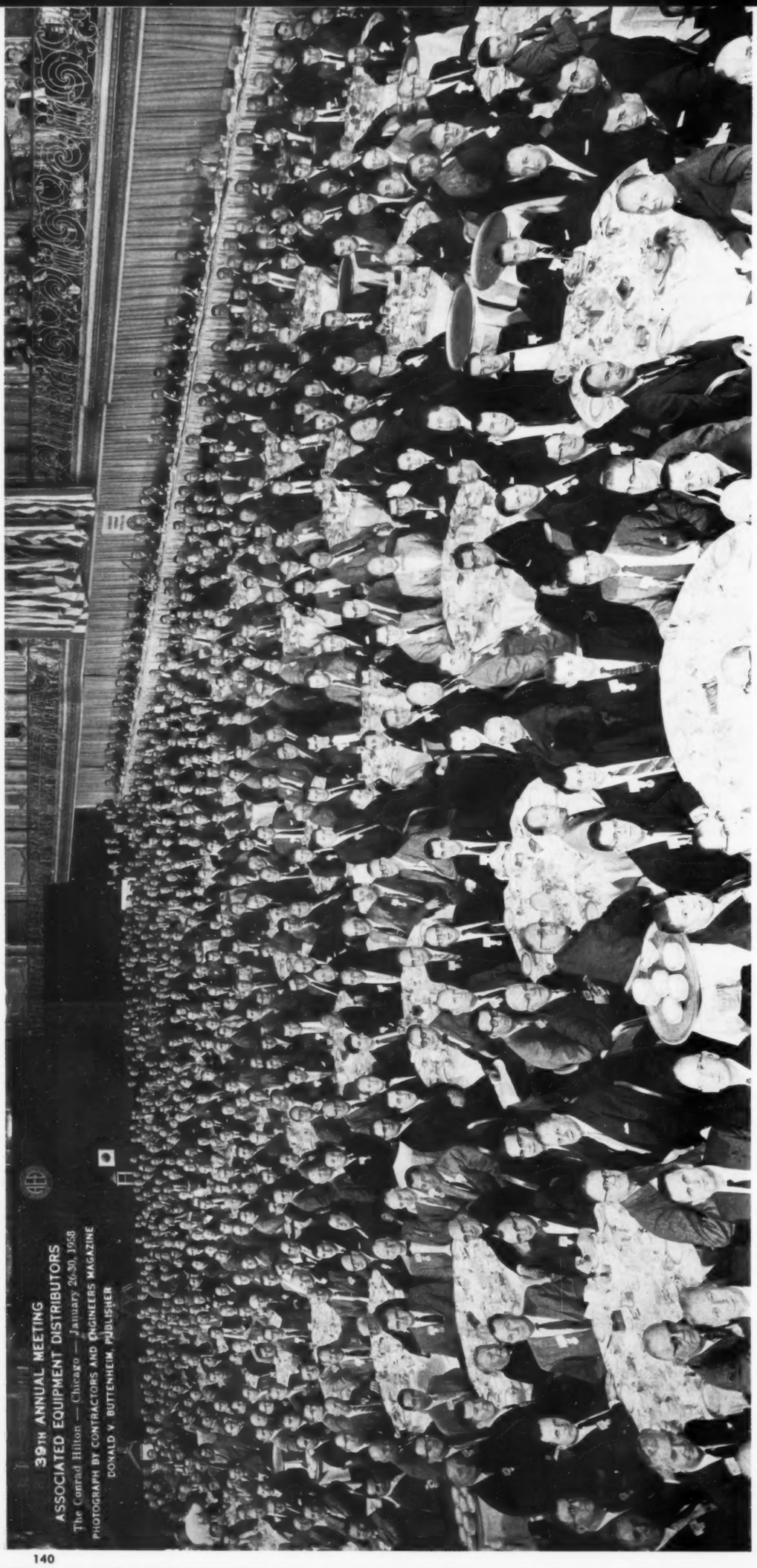
New—1½-yard-capacity
OLIVER OC-126 LOADER
Here's full-rated 1½-yard capacity in a live-action loader that humps production. Has ultra-responsive hydraulic system and more rapid work cycle. Easy, smooth, responsive controls. POWER-TURN steering further speeds the job—there's full-time, 2-track power!

Newest! 1¾-yard-capacity
OLIVER OL-175 LOADER
The most advanced loader on rubber! Four-wheel drive with torque converter and integral power shifting transmission. Fast 21 m.p.h. travel speed. Rapid loading action, short turning. Handles amazing range of jobs.

THE OLIVER CORPORATION
Industrial Sales Div., 19300 Euclid Ave., Cleveland 17, Ohio
a complete line of industrial wheel and crawler tractors and matched allied equipment

Also OLIVER rubber-tired tractor loaders in the popular SUPER 55, 77 and 88 Series—11 cubic feet capacity to ¾ cubic yard capacity

For more facts, use Request Card at page 18 and circle No. 357


39TH ANNUAL MEETING
ASSOCIATED EQUIPMENT DISTRIBUTORS
The Conrad Hilton — Chicago — January 26-30, 1958
PHOTOGRAPH BY CONTRACTORS AND ENGINEERS MAGAZINE
DONALD V. BUTTENHEIM, PUBLISHER

Distributor doings

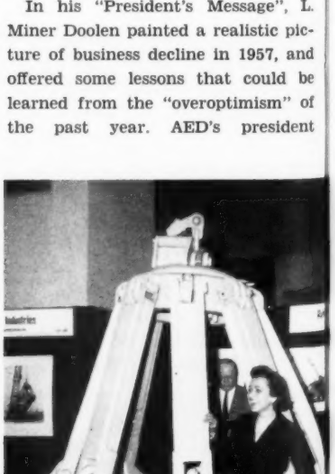
Industry sets sigh

Equipment distributors and manufacturers compared notes on what went wrong with '57, at the Associated Equipment Distributors' 39th annual meeting, and looked to the coming year with guarded optimism. Both speakers and delegates seemed to agree that, with improved business methods, more attention to sales, and a little luck, 1958 would be a better year.

Attended by approximately 4,000 members and guests, the convention was held January 26 through 30 at the Conrad Hilton Hotel in Chicago. Representatives from some 675 distributor companies and 325 manufacturers gathered from all parts of the United States and Canada to exchange ideas and work out their mutual problems.

During the morning business sessions, leading authorities and panel members suggested ways of gearing management and sales for 1958. During the afternoon, distributors and manufacturers were free to get together to work out their own problems. Some 100 manufacturers exhibited their products in booths in the lower lobby of the Conrad Hilton. CONDEX, as the exhibit center was called, also provided a convenient place for manufacturer-distributor conferences.

In his "President's Message", L. Miner Doolen painted a realistic picture of business decline in 1957, and offered some lessons that could be learned from the "overoptimism" of the past year. AED's president



Ruhr Industries, Philadelphia, Pa. shows one of its grapples and shapely Ingrid Schroeder in its Condex booth.

sight '58

at AED annual meeting

The AED executive committee are (seated l. to r.): vice president J. A. Benson, Benson Tractor Co., Houston, Texas; treasurer J. R. Borchert, Borchert-Ingersoll, Inc., St. Paul, Minn.; president H. D. Anderson, Rish Equipment Co., Bluefield, W. Va.; and executive vice president F. J. Fitzpatrick, Parker-Danner Co., Hyde Park, Mass. Standing: executive secretary P. D. Hermann; Canadian vice president H. T. MacDonald, Kane Equipment Ltd., Winnipeg; and vice president F. R. Cooper, Howard-Cooper Corp., Portland, Oreg.

H. D. Anderson, 1958 president of the Associated Equipment Distributors.

pointed out that "a survey we have just completed among 200 distributors shows 1957 sales of new and used equipment off last year by some 7 per cent as compared with 1956."

Doolen attributed a part of the business decline to the delays of getting into the construction phase of the new highway program. Relying on overenthusiastic reports regarding the program, most dealers did not realize "the practical difficulties which occasion a 21-month time-lag from the time money is appropriated for highway construction to the time actual field work gets under way."

Another fact that emerged from 1957 was, according to the retiring president, "the clear recognition that our fortunes are closely tied to our trade-in practices and policies, and to our ability to move our used-equipment inventories on a sound basis . . . a realization that used equipment probably represents the most important single problem with which we have to contend."

Doolen left his audience with this message on insuring success in the coming year: "I believe it is imperative that we, as distributors, concern ourselves more directly with the health of our respective businesses than we have, heretofore. Each distributor should make an effort to present the best possible balance sheet.

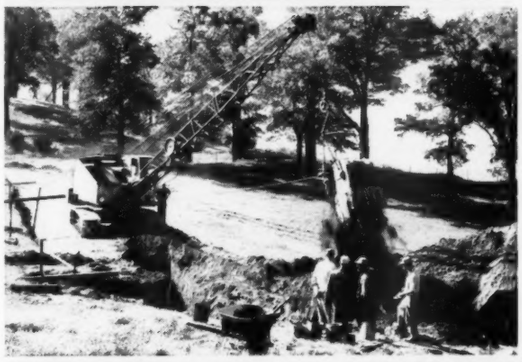
"I feel that 1958 can be at least moderately successful and rewarding for those of us who lay our foundations carefully, plan for it, study our business with a detached perspective, and adopt our operations accordingly."

Presiding at the conference in spite of ill health, President Doolen in-

(*Continued on next page*)

NOW...THE LORAIN-26

offers you even more new advantages



More and more quality features are being added constantly to the heavy-duty, ¾-yd. Lorain-26 to put it even further ahead in high-speed production and lower maintenance.

For instance, today all Lorain-26's are equipped with an improved, vertical swing shaft, mounted on anti-friction bearings. Also, all horizontal and vertical power shafts, except the infrequently-used boom hoist, now revolve on anti-friction bearings. Even the turntable rollers are so mounted.

Draglines are now equipped with a new style, fully revolving trunnion-type fairlead that adds weeks to cable life.

And look at these additional features . . . *"E-Z" action operating controls on anti-friction bearings —five identical operating clutches—Hydra-Ease power operation of all crawler functions—the exclusive square-tubular-chord crane boom for lifting more at greater reaches—optional extra-wide crawler for even greater crane capacity—extra-strong, precision drop-forged treads—hydraulic coupling or torque converter.*

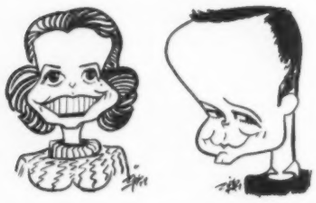
You get all these advantages in this feature packed, heavy-duty ¾-yd. machine that already has proven itself in the field. Also, investigate the top-notch service and parts facilities of your Thew-Lorain Distributor. His contribution to years of trouble-free operation is another part of what you get when you buy a Lorain.

THEW LORAIN® *reliability in action*

THE THEW SHOVEL CO., LORAIN, OHIO, U.S.A.

For more facts, use Request Card at page 18 and circle No. 358

distributor doings



Mrs. Lois Holmboe and son, Brent, Ellis Mfg. Co., Oklahoma City, Okla.

spired the respect and admiration of all who heard him. Only several days before the convention, Doolen was released from a hospital after undergoing surgery to correct thrombophlebitis, or blood clot, in his left leg. Under strict orders from his doctor to take it easy, the president made his way to official functions in a wheel chair, and spoke to his audience from a seated position.

Elected as AED president for the coming year was H. D. Anderson, Rish Equipment Co., Bluefield, W. Va. Officers elected to other posts were: F. J. Fitzpatrick, Parker-Danner Co., Hyde Park, Mass., executive vice president; J. A. Benson, Benson Tractor Co., Houston, Texas, vice president; F. R. Cooper, Howard-Cooper Corp., Portland, Oreg., vice president; H. T. MacDonald, Kane Equipment Ltd., Winnipeg, Manitoba, Canada, vice president for a second term; and J. R. Borchert, Borchert-Ingersoll, Inc., St. Paul, Minn., treasurer for a third term.

Bob Tongas, advertising manager for Drott Mfg. Corp., Milwaukee, Wis. demonstrates a model of the International TD-9 tractor and Drott 4-in-1 shovel.

Frank Muller, Delaware Tool Steel Corp., Wilmington, Del.

Rep. Thomas B. Curtis of Missouri, who spoke at the opening session, had some encouraging words for the owners of small and medium-size businesses. According to Curtis, the crippling tax burden on such firms, as revealed by their testimonies before the House Ways and Means Committee, "dictates Congressional action this season."

"After federal taxes," the congressman explained, "these companies have hardly enough left to finance the inflated replacement costs of inventory, and obsolete machinery and equipment, let alone necessary renovation and modernization, and still get a reasonable return on their investments."

Mr. Curtis promised the dealers

FAST, LOW-COST WAY TO INSTALL PIPE . . .

push it under streets, roads, tracks, lawns with a timesaving

GREENLEE HYDRAULIC PUSHER

Speed underground piping jobs this way. GREENLEE Pusher is one-man-operated (by hand or with power pump), portable, simple to set up and use. No tearing up of pavement, floors, lawns . . . does away with extensive ditching, tunneling, backfilling, repaving. GREENLEE Pusher cuts job time to a fraction . . . often pays for itself on first job.

Two feet per minute average pushing time

GREENLEE Pushers are available in two sizes: No. 790 for ¾" to 4" pipe . . . No. 795 for pipe over 4", concrete sewer pipe, large ducts. Average performance of No. 790, shown above with power pump, two feet per minute. Write for literature.

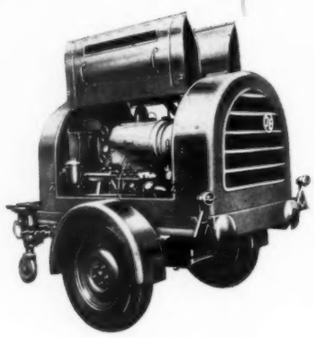
GREENLEE

GREENLEE TOOL CO.

2263 Columbia Avenue • Rockford, Illinois

For more facts, circle No. 359

"That's the toughest, sturdiest air compressor we ever had."



D-301-R 110 cfm

2520 working pounds

I. & E. Air cooled Diesel compressors are earning a reputation, wherever they go, for steady and sure performance in the worst of weather.

Sole Agents

AIR COMPRESSORS, INC.

2339 W. BEAVER ST. P.O. BOX 2976 JACKSONVILLE, FLORIDA

For more facts, use Request Card at page 18 and circle No. 360

TIME FOR DRILLING 3½" HOLES THROUGH 10" REINFORCED MERAMEC GRAVEL CONCRETE FLOOR CUT FROM 6 HOURS TO 30 MINUTES

JOB: Cut 150 holes 3½" diameter through 10" concrete floors for new conduit feeders in the warehouse section of the old Mart Building, now the St. Louis Area Support Center, St. Louis, Mo. The Building, constructed in 1932, was built of concrete containing Meramac gravel aggregate—"the next thing to flint". Chiseling these holes would have resulted in jagged and uneven holes, much dirt and noise, a big clean-up job and much patching to finish up the job and would have averaged six hours each for two men.

CONTRACTOR: The Sachs Electric Corporation, St. Louis, Mo.

TOOLS: Model C Truco Diamond Drilling Machine with 350 rpm motor and 3½" O.D. Truco Diamond Drill Bit.

DESCRIPTION: Truco unit was used mounted on its mobile base and moved to location on its rubber tired wheels. Actual drilling time on each hole was from 6 to 9 minutes depending upon the number of reinforcing rods to be cut. Each completed hole averaged 30 minutes including all moving, set-up and core removal. (Compare with previous 6 hours for two men with air hammers.) Completed hole was clean and smooth and no patching needed. Truco unit is completely portable by one man and is designed for high speed drilling in practically any location. Wired for 110 V, 60 cycles or less.

WRITE FOR NAME OF NEAREST DISTRIBUTOR

Truco Swivel Division

WHEEL TRUEING TOOL CO.

25-3200 W. Davison Ave. • Detroit 38, Michigan

For more facts, use Request Card at page 18 and circle No. 361

T. D. Casey, Casey-Metcalfe Machinery Co., Inc., Los Angeles, Calif.

that, "If these firms continue to tell their own congressmen about the tax burden, I can assure you tax adjustments will be made this year."

Sales manpower planning

How to hire and train salesmen was the primary concern of the second day's meeting. Two experts, recruited from outside the construction industry, gave some helpful suggestions on the hiring and training of salesmen.

Dr. R. N. McMurry, personnel management consultant, of McMurry-Hamstra Co., Chicago, pointed out that before hiring a salesman there are two important facts that the dealer should consider: he should know exactly what kind of person the sales job requires, and he should have a thorough knowledge of an applicant's experience, education, intelligence, and personality. Only by knowing the job and knowing the man is it possible for the distributor to hire a top-tier salesman.

McMurry presented some modern techniques for quickly screening out men who would not be qualified for the sales job. His methods included a key list of questions to be answered by the applicant's former employers, as well as special intelligence tests.

The subject of training the salesmen was left squarely up to Dr. K. B. Haas, chairman of the Department of Marketing of Loyola University, Chicago.

Dr. Haas stated that one of the reasons for the current slump in business was the lack of a sound training program for sales personnel. He pointed out that setting up a good training program took considerable time and effort.

The program that he suggested was keyed to the deceptively simple statement: "You learn by doing." New salesmen should be required to practice salesmanship at staff meetings; simply watching movies and getting tips from veteran salesmen is not enough. At staff meetings, the new men should be given practice problems. They should make their pitch and even be heckled at sessions under the eyes of veteran salesmen. As special assignments, they should handle

(Continued on next page)

At the last business session of the AED convention, J. A. Benson introduces the panel on "How 1958 Looks to Us". Left to right are: M. B. Christensen, chief of construction, Bureau of Public Roads; Robert M. Hoover, president, Kansas City Bridge Co., Kansas City, Mo.; S. B. Lyons, editor, Finance Magazine, and moderator of the panel; Julien R. Steelman, president, Koehring Co., Milwaukee, Wis.; D. L. Salinger, director, Industrial Division, Walter E. Heller Co., Chicago, Ill.; and Dr. G. D. Wilkinson, distribution engineer and consultant.

This compact Jaeger Model 2PN, pumps all the water a 2" suction hose can handle. **With 2½" suction hose it pumps more than 14,000 gph.**

Now handle more water with Jaeger pumps

Today's Jaeger Sure Prime pumps deliver performance never before offered—and at slower, long-life operating speeds. For example, a Jaeger 6PH can handle 100,000 gph as a dewatering pump or deliver 975 gpm at 60 psi pressure for well point jetting or gravel washing. Base your pump buying on latest information. See your Jaeger distributor or send for catalog.

THE JAEGER MACHINE CO., 701 Dublin Avenue, Columbus 16, Ohio

AIR COMPRESSORS • MIXERS • PAVING SPREADERS and FINISHERS

For more facts, use Request Card at page 18 and circle No. 362

SOLID COMFORT AND SUPERIOR PROTECTION AT A NEW LOW PRICE!

THE GENTEX No. 105 SAFETY HAT *Delivers*

***Full-Shift* COMFORT . . .**
Men *like* to wear it because it's lightweight, with wrinkle-free adjustable head band and exclusive new better-than-ever snap-in sling.

***Full-Shift* PROTECTION . . .**
Strong plastic construction that tops all Government safety standards, insulates against heat and sun and withstands over 10,000 volts.

You Can Bet your Life On a GENTEX®

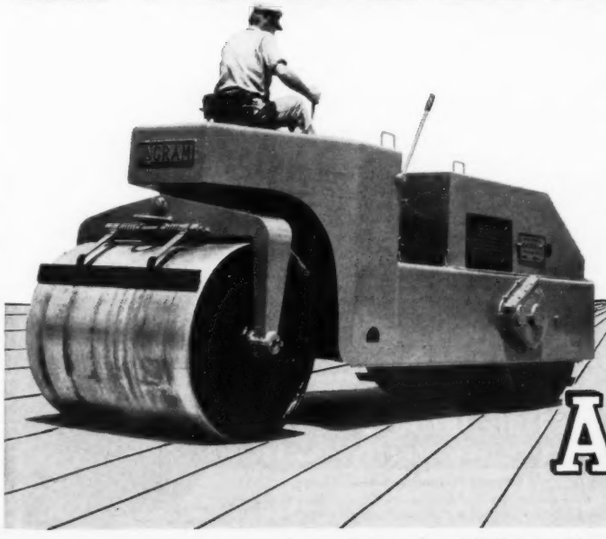
Foremost Manufacturer of Helmets for the Military

Write today for a test hat and information on our new low prices.

GENERAL TEXTILE MILLS, INC. Dept. E
450 SEVENTH AVE., NEW YORK 1, N. Y.

For more facts, circle No. 364

INGRAM rollers



TANDEM and 3 WHEEL ROLLERS
AVAILABLE IN ALL SIZES

Acme IRON WORKS
P.O. BOX 2020 • SAN ANTONIO 6, TEXAS

For more facts, use Request Card at page 18 and circle No. 363

DON'T THROW AWAY CRACKED DIESEL CYLINDER HEADS

You can save 50% of replacement cost with Factory Rebuilt Swick-Guth Heads. Swick-Guth restores cracked or worn heads, blocks, transmission cases to a Guaranteed good as new condition by the Controlled Heat Process . . . successfully used for more than a Quarter Century.

Send today for price list and a free booklet on the famous Swick-Guth Process, and the name of the dealer nearest you.

SWICK-GUTH CO.

McPHERSON, KANSAS • FORMERLY GUTH CO.

"SPECIALISTS IN WELDING DIESEL CASTINGS"

For more facts, use Request Card at page 18 and circle No. 366

Help your workers to help you...

PUT AJAX TO WORK FOR YOU

ABSENTEEISM, you know, upsets schedules, slows production, boosts costs, cuts profits. AJAX *complete* drinking water service offers three-way help in keeping lost time at a minimum, work on schedule.

- **Safety messages** — imprinted free on AJAX (or AERO) Cups do help reduce lost-time accidents by constant reminder of the routine precautions we are all so prone to neglect.
- **Clean, crisp** AJAX Cups — the most sanitary way to provide drinking water — reduce hazard of contagions like the common cold that cost industry 300,000,000 lost man-hours per year.
- **Comfort** and convenience of AJAX Cups encourages adequate water intake — vital to peak efficiency — boosts worker morale, is actually the most time-saving way of providing clean drinking water.

Why don't you take advantage of the three-way protection offered by AJAX *complete* drinking water service?

GET THE FULL STORY Ask your contractors' supply house or paper merchant for samples of imprinted AJAX Cups and equipment and folder giving complete details. Or write to

AJAX® CUPS and Drinking Water Tanks deliver fresh water to workers — mean less time lost on the job. 4 oz., 6 oz. and 7 oz. cups, imprinted with assorted stock safety messages at no extra cost — or your own message to order. AJAX Cups and Dispensers are ideal for use with any tanks, barrels or pipeline faucets.

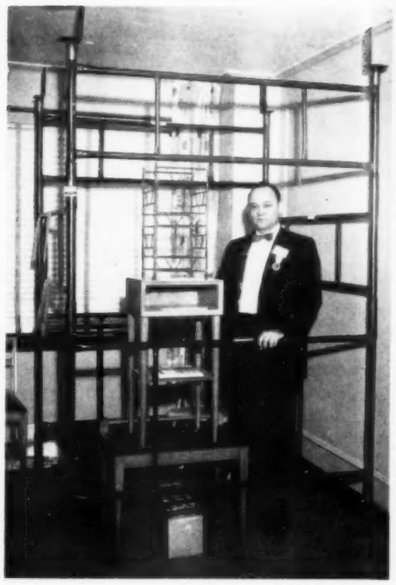
United States Envelope Company

General Offices: Springfield 2, Massachusetts

15 Divisions from Coast to Coast

For more facts, use Request Card at page 18 and circle No. 367

distributor doings



At the Condex Exhibit, R. V. Sager of Brainard Steel Division, Warren, Ohio, displays a plastic model on a table inside a tower of Brainard scaffolding.

(*Continued from preceding page*)

research projects designed to reveal the advantages of competitive products.

A. W. Davis, vice president, Jackson Vibrators, Inc., Ludington, Mich.

Outlook for 1958

Nearly all of the speakers agreed on what had happened in the construction industry during 1957. In the final business session, only a few were willing to risk predicting what would happen in 1958.

A panel of leading men in the construction industry also took a look over the horizon at 1958.

Representing the contractor was Robert M. Hoover, president, Kansas City Bridge Co., Kansas City, Mo. Hoover believed that the over-all volume of construction contracts would increase from 4 to 5 per cent over last year. He agreed with economist Upgren that the latter half of 1958 would bring an upswing in business.

Speaking from the manufacturer's point of view, J. R. Steelman, president, Koehring Co., Milwaukee, Wis., said that the replacement of worn-out equipment will be the primary market for manufacturers in the coming year. In volume of business, Steelman expects 1958 to be slightly better than 1957. THE END

LOW COST POWER for WRECKING-SMASHING

FREDERICK CAST Semi-Steel DROP BALLS

Tough, rugged Frederick Drop Balls eliminate expensive drilling, blasting . . . deliver smashing low cost power when you want it, where you want it. Exclusive "Pear-shape" design drops straight—swings true—withstands greater impact. Balls 4000 lbs. or over are made of extra durable nickel alloy—or special alloys furnished on request. "E-Z" Swing recessed steel eye gives greater cable protection plus free swinging action. Balls can be furnished with replaceable pins. Use Frederick Cable Weights (135 & 250 lbs.) and Frederick Swivels on all size balls for true, safe cable performance. Special release hooks for free dropping also available.

Wide range of sizes and weights:

Pear shape (lbs.)	1500	2000	3300	4000	5200	6500	8000	10,000	
Ball shape (lbs.)	500	1000	2000	5200					
Spherical shape (lbs.) .. (for magnet use)	470	950	1650	2400	3000	3700	5400	6900	

Write us today for prices and illustrated literature; order Balls direct or see your nearest Equipment Dealer.

FREDERICK IRON & STEEL, INC.

FREDERICK *Established 1890* MARYLAND

Phone: MOnument 3-5111

Makers of Manhole Frames, Covers and Steps • Storm Gratings
Meter Frames and Covers • Centrifugal Pumps • Grey Iron Castings

For more facts, use Request Card at page 18 and circle No. 368

distributor doings

Service and sales "extras" keep distributor growing

With aggressive and modern sales methods, and proved equipment lines, Whayne Supply Co. aims to give customers the ultimate in service

An organization that sleeps, eats, and talks sales and service is Whayne Supply Co., Inc., Louisville, Ky.

The result has been a tremendous equipment business for this dealer, which has a territory including all but three Kentucky counties, plus 16 counties in southern Indiana.

Coverage of this big area made expansion inevitable and today, in addition to its Louisville headquarters, the firm operates five branches—at Paducah, Bowling Green, Corbin, and Ashland, Ky., and at Evansville, Ind.

Into the field

Fast and efficient service for equipment users is almost an obsession with Whayne. Twenty-nine salesmen, working out of the various branches, are usually to be found right in the field where equipment is being used. Knowing that speed is important, when it comes to customer service, Whayne has equipped all its Louisville salesmen with walkie-talkie telephone sets. These are operated in conjunction with an answering service so that a "hot" message can be relayed from the main office to salesmen, who listen in at least once every hour for a communication. Several times, this fast communication has helped make substantial sales for the company.

Service is emphasized, too, by the resident mechanics, scattered throughout the state. These men live at home and answer any calls for service in the area. This type of service supplements work done at modern repair and maintenance shops at each of the branches, plus the work of 35 well equipped service trucks that bring maintenance facilities out into the field.

Whayne men have a busy time of it, for aside from the construction market Whayne handles soil-conservation, logging, mining, and industrial markets. The last is enjoying a healthy growth, particularly around the Louisville area, where major U. S. manufacturers are building new plants.

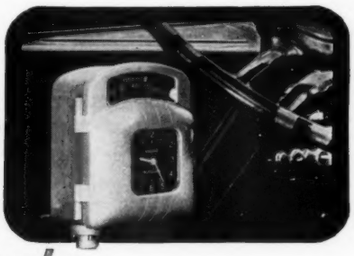
Parts service

Being a well rounded organization, Whayne does not concentrate all its selling energy on new equipment. The firm is proud of its parts service pol-

(Continued on next page)

Trucks backed up to the shipping section of Whayne Supply Co. headquarters in downtown Louisville wait to pick up an order. Parts are usually on their way to customers the day an order is placed.

IMPROVE THE EFFICIENCY OF YOUR MOBILE EQUIPMENT



Tachographs can lower repair costs, increase operation efficiency, and improve your safety record

Regardless of the type of vehicle you operate, a Tachograph will economically measure the complete performance of both equipment and drivers.

The Tachograph is an accurate recording speedometer that mounts easily on the dashboard. From the wax-coated chart that is inserted *inside* the tamper-proof aluminum case, you get a complete and permanent record of the entire operation. When started—Stopped—Idling time—Distance between stops. Easy-to-read illuminated dials also show time of day, m.p.h. and total mileage. Tachograph models which indicate and record engine r.p.m. are also available. There's the added safety advantage of the red warning light that signals the driver whenever your company's predetermined speed limit is exceeded.

Learn the full facts about Tachographs. The coupon below brings a copy of Bulletin SU-3—it tells the *whole* Tachograph story.

Wagner Electric Corporation 6364 Plymouth Ave., St. Louis 14, Mo.

Please send a copy of Bulletin SU-3.

Name and Position_____

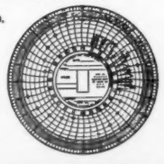
Company_____

Address_____

City_____ State_____

We operate_____ Vehicles

557-9

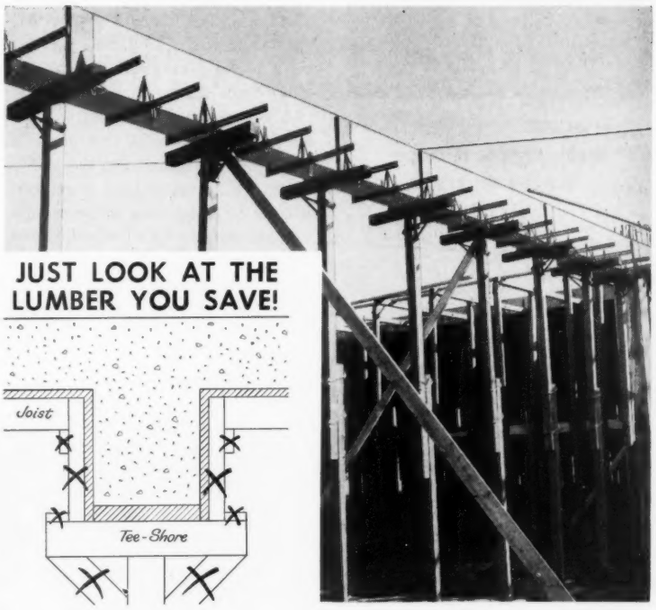


For more facts, use coupon, or Request Card at page 18 and circle No. 369

BIG SAVINGS ON FORMING LUMBER

now possible with the new

Ellis Beam-&-Column Clamp



JUST LOOK AT THE LUMBER YOU SAVE!

The Ellis Beam-&-Column Clamp Eliminates Most Cleats, Stringers, Framing, Bracing and Nailing!

Equally effective, without change, for both beam and column forms, this clamp is adjustable from 5″ to 30″. In the top photo, beam bottoms and sides are cut out of 4′ x 8′ sheets of ¾″ plywood. The shores are then spaced 4′ C to C, this wider spacing being accomplished by the use of the beam clamp, which ties the three sides together as one unit. The beam sides also help carry the load. At the right is a typical column form with the same clamp.

Investigate this money-saver now. Write for details to:

Ellis MFG. CO., INC. 211 N.W. 4th STREET OKLAHOMA CITY, OKLA.

For more facts, use Request Card at page 18 and circle No. 370

distributor doings

icy, and was one of the first dealers in the country to put parts salesmen in the field. As a result, there have been years when the company sold more spare parts than new equipment.

Whayne maintains a $1,800,000 parts inventory at each branch with a Kardex system. If Whayne finds that a storage bin falls short, it calls as many branches or parts depots as necessary, within a 300-mile radius, to provide a part at no extra cost to a customer. Parts are usually shipped on the first available carrier, whether it be bus, freight car, or truck. In general, 99 per cent of all orders are on their way to a customer the day they are placed. And every order is treated as an emergency requisition. In cases of actual emergency, the company uses its Beechcraft twin-engine Bonanza plane to deliver a part and help reduce a customer's downtime.

Used equipment

New equipment sales and parts sales are only part of the Whayne story. The firm does a topnotch job on used-equipment sales. In this area, as in others, Whayne constantly experiments with selling ideas and promotion media to get a message across to customers or potential customers.

Well placed advertising—not just in its territory, but on a world-wide basis—direct mailings to a select list of over 25,000, and a special warranty and return privilege program are some of the merchandising techniques for used equipment. Actually, customers may use four special plans. One is the familiar "As Is Where Is" plan. The other three are Whayne-designed programs that go under the heading of Seal Programs. Blue Seal warranty covers repair or replacement on all parts defective under normal use for a full 60-day period from the date of delivery, exclusive of transportation or installation costs. Gold Seal warranty is substantially the same plan, but it has a 30-day warranty and a special return privilege for a 30-day period with the full purchase price allowed toward the price of a new machine of similar or larger size, also exclusive of transportation costs. The third program, Silver Seal, states that if equipment is returned within 15 days with transportation prepaid and, allowing for normal wear and tear, is in as good condition as when received, the full amount paid for the machine will be credited toward the purchase of another used rig of the same price or higher, or a new machine of the same size or larger.

These Seal policies have been set up by Whayne especially for the protection, interest, and satisfaction of the customer. Complete reports are maintained on all used equipment, and these are furnished to the salesmen as current information on equipment inventory and prices.

Steady growth

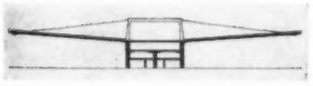
Today, Whayne does a substantial business handling the complete lines put out by Caterpillar, Thew-Lorain, Gardner-Denver, Jaeger, Master, Universal Engineering, and LaCrosse Trailers. But like all firms it had a modest beginning.

Roy C. Whayne, now chairman of the board, founded a building supply and machinery-distributing business in 1913 and, three years later, was joined by his brother, Harry T. Whayne. They operated the business with the help of one stenographer for another five years. Then in 1921, they abandoned all but the machinery-distribution business and obtained a franchise to distribute Caterpillar machinery, which was then being made by the Holt Manufacturing Co.

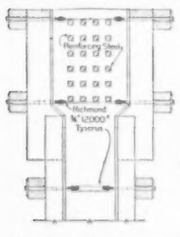
After a further expansion required a move into their present offices, the Whaynes hired a sales engineer. The man who took over this job was R. D. "Doug" Ezell, who remained with the company until his death in April of last year. Ezell became sales manager after a few months in the field. During the next ten years, company sales increased at a rapid rate,

anchor walls

Richmond Tyscrus perform double function in unique hangar construction



The top walls of this air line hangar building at New York International Airport – built by Corbetta Construction Company – act as anchors for the steel cables which will support cantilever roofs over hangars on both sides. Richmond Tyscrus, at 4' x 2' spacing, hold the forms in place for a full-height continuous pour of these 12" x 30' x 100' anchor walls. In addition, the Tyscrus support the reinforcing steel cages of 24 1⅜" square bars, thermit-welded to provide 100 ft. long continuous reinforcing in the top beams of each wall. Weight of this reinforcement runs around 240 lbs. per foot.



TOP SECTION, ANCHOR WALL

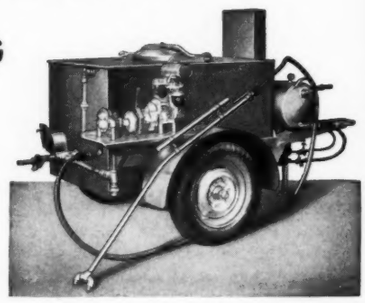
An ingenious system of pouring pockets in the forms permitted easy access to the Tys for installing Tylags on the closing side. Assembly and stripping of forms was fast; Richmond 2-strut, ¾" Tyscrus (published safe load 12,000 lbs., ultimate strength 20,145 lbs.) have self-cleaning threaded connections.

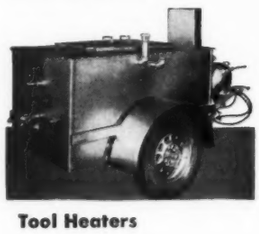
The new Richmond Handbook describes the full line of Richmond-engineered tying devices. Write to: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Avenue, Brooklyn 8, N. Y. or 315 So. 4th St., St. Joseph, Mo.

For more facts, circle No. 371

White HEATING KETTLES

FOR *SAFER* MELTING OF BITUMINOUS MATERIALS





Tool Heaters
Surface Heaters
Special F-10 Compound Kettle
Torches and Burners

Capacities from 80 to 325 gallons. All equipped with *exclusive* FIRE PROOF TOP (hinged tops available for roofing use). Operator and equipment are *protected* from flash fires. Complete line of accessories optional. Choice of kerosene and propane burners.

White MANUFACTURING COMPANY

ELKHART 9, INDIANA

For more facts, use Request Card at page 18 and circle No. 372

THIS*

is the Completely Re-Designed

MONATCO Asphalt HEATER-PLANER

NO SMOKE – Strict control over both primary and secondary air results in soft reducing flame. Uniform heat of 2000° F. softens and conditions the asphalt, but DOES NOT burn it.

NO DANGER OF FIRE – Monatco's new, exclusive design puts main drive engine, auxiliary engine for fuel and air pumps, and fuel tanks OUT OF the heat zone. Two fuel cut-offs for extra safety.

All parts in heat zone subject to heat damage are water-cooled.

Open frame with grill lets heat rise straight up from hood.

Standard automotive parts throughout. Model M-2: 15 forward speeds, 8 ft./min. up to 25 mph. Model M-2A: with Allison Torque Converter, both forward and reverse speeds are infinitely variable from 0 to 25 mph. Fuel capacity 280 gal., enough for 10 hrs. heaviest planing.

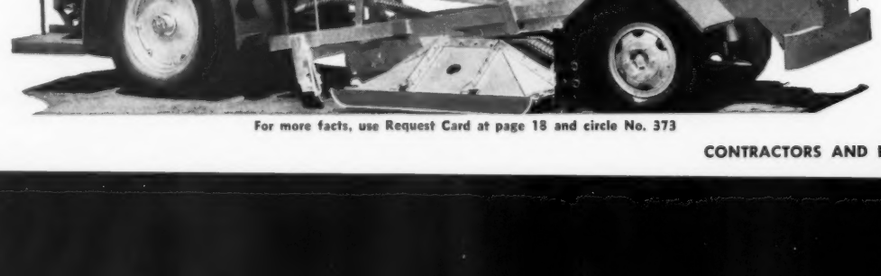
Heats and planes in one operation, 80" wide, up to 1" deep, with a thoroughness and economy never before found in any road maintaining machine or combination of machines. *Actual records show costs as low as .10 per yard.*

U. S. Patent No. 2,705,906. Other patents pending.

For complete information and cost operating data, ask your dealer or write:

MONATCO MFG. CORPORATION • 1401 Woodland, Kansas City, Mo.

* SERIES M-2

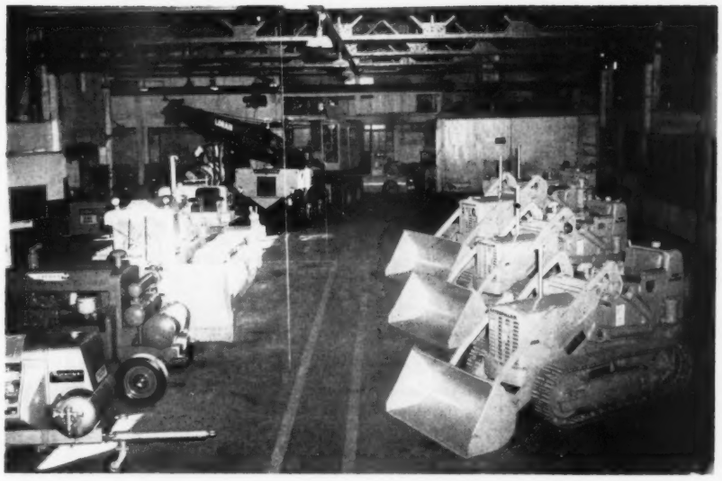


Can be equipped with scarifying teeth, to soften and efficiently remove old pavement.

Dealership available in a few areas

For more facts, use Request Card at page 18 and circle No. 373

and Whayne kept growing. The Paducah branch opened in 1942. In 1945, the company was incorporated. The Evansville, Ind., branch opened in 1947. Roy C. Whayne, Jr., was elected a vice president in 1950, when he was 31 years old. The following year, the Ashland branch opened. Then, in 1953, Doug Ezell became president, replacing Roy Whayne, who became chairman of the board. Harry Whayne remained as vice president and secretary. At the same time, the Bowling Green branch was opened with Roy C. Whayne, Jr., as branch manager. Last year, the Corbin branch became the newest Whayne addition, and Nelson Helm, assistant secretary for Whayne for 18 years, became president after the death of Doug Ezell.



Whayne has a down-to-earth approach to indoor displays of new equipment. Jaeger compressors, Caterpillar front-end loaders and dozers, and a Lorain Moto-Crane are in this lineup for customer inspection.

J. G. Browne currently serves as treasurer. Rounding out the aggressive force that keeps the Whayne firm in a strong position are J. B. Buren, vice president and general manager, Floyd L. Bennett, vice president and director of sales, Edwin Randle, vice president and branch manager, and T. W. Brooks, vice president and branch manager.

Whayne policies, and the men who make and administer those policies, have helped the firm to an extraordinary growth, particularly since 1945, when the company was incorporated. Then, Whayne Supply Co. employed 102 people and had a capital investment of $250,000. Today, the firm has more than 320 employees and a capitalization of over $4 million.

THE END

New AED region director

Herbert J. Mayer, executive vice president of Western Machinery Co., San Francisco, Calif., has been elected

(*Continued on next page*)

Over 100,000 WARN HUBS now in use on 4-wheel drives!

Models for all makes 4 w. ds. to 1½ tons at local dealers'.

Jeep

STOP FRONT DRIVE WEAR, DRAG AND WHINE IN 2-WHEEL DRIVE!

SAVE ON EQUIPMENT . . .
SAVE ON REPAIRS, GAS, TIRES . . .

Install either Warn Lock-O-matics, the hubs that "shift for themselves", or get Warn Locking Hubs and "dial the drive" with your fingers. You'll never again have a 4-wheel drive without Warn Hubs!

WARN MFG. CO., Inc. Riverton Box 6064-CN3, Seattle 88, Wash.

For more facts, use Request Card at page 18 and circle No. 374

In Worldwide Use

ROLCOR ROLLERS

Static...Vibratory

A one-ton roller that has built a world wide reputation among large and small blacktop contractors. Easily transported and a money-maker. $895.

A vibrating roller weighing 3530 lbs. that will produce compaction densities of 8-ton dead weight rollers. The least expensive way to produce compaction. $1875.

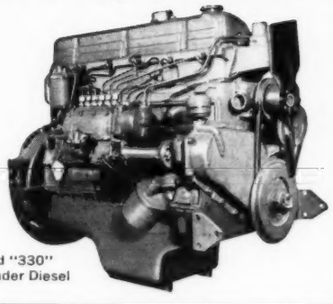
This 5-foot tractor-drawn, 3860 lb. vibrating roller is going to be a great factor in road construction. Quality built throughout. Sells at only a fraction of the cost of foreign machines. $1895.

Above prices F.O.B. Minneapolis

ROLCOR *Industries*
1108 Nicollet Ave. Minneapolis 3, Minn.

For more facts, circle No. 376

NOW, another modern diesel from FORD



Ford "330" 6-cylinder Diesel

For dependable, heavy-duty service, you'll find the new Ford "330" Diesel hard to beat. It is quality-built throughout for quick all-weather starting, dependable performance and top operating economy.

Ford "330" Diesel features include: removable "wet" cylinder sleeves that eliminate costly reboring; Four-Way Injectors for greater economy; and rotating exhaust valves for better seating, longer life.

For power that's right for your particular application, choose either the new Ford Heavy Duty "330" Diesel or the Ford "220" Diesel.

ENGINE SPECIFICATIONS		"220"	"330"
Basic Model		X	Y
Number of Cylinders		Four	Six
Bore and Stroke—Inches		3.94 x 4.52	3.94 x 4.52
Displacement—Cubic Inches		220	330
Brake Horsepower	Dynamometer	61 @ 2250	96 @ 2250
	Continuous	49 @ 2250	77 @ 2250
Torque	Dynamometer	152#' @ 1600	236#' @ 1500
	Continuous	131#' @ 1600	189#' @ 1500
Compression Ratio		16 to 1	16 to 1

Ford INDUSTRIAL ENGINES AND POWER UNITS

INDUSTRIAL ENGINE DEPARTMENT • FORD Division of FORD MOTOR COMPANY • P. O. Box 598, Dearborn, Michigan

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED!

For more facts, use Request Card at page 18 and circle No. 375

RICE PUMPS THE LINE THAT IS COMPLETE

CENTRIFUGALS

All Standard "AGC" Sizes from 1½" to 10"

- Air and Water Cooled Power
- Modern Design
- Precision Built

LIGHTWEIGHTS

1½" - 2" - 3"

- 5500 to 18,000 GPH
- Iron or Aluminum
- Powered with 4 Cycle Air-Cooled Gasoline Engines

DIAPHRAGMS

2" - 3" - 4" Singles
Big 4" Double

- Single or Double
- Lightweight
- 48:1 reduction
- Gearing fully enclosed and operates in oil.

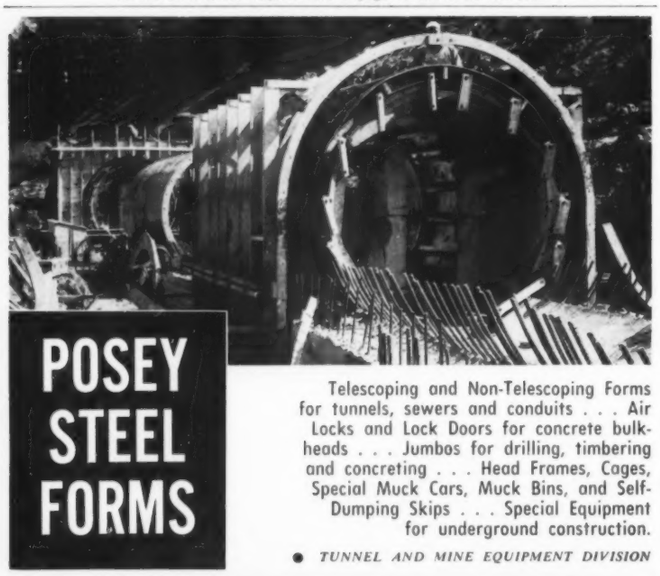
PUMP DISTRIBUTION —

Check on the availability of the RICE LINE for your territory.

RICE PUMP & MACHINE COMPANY

228 PARK AVENUE BELGIUM, WISCONSIN

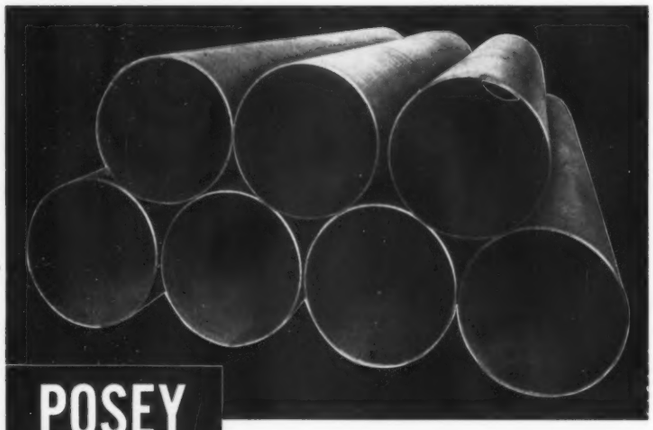
For more facts, use Request Card at page 18 and circle No. 377



POSEY STEEL FORMS

Telescoping and Non-Telescoping Forms for tunnels, sewers and conduits . . . Air Locks and Lock Doors for concrete bulkheads . . . Jumbos for drilling, timbering and concreting . . . Head Frames, Cages, Special Muck Cars, Muck Bins, and Self-Dumping Skips . . . Special Equipment for underground construction.

● *TUNNEL AND MINE EQUIPMENT DIVISION*



POSEY Large O.D. PIPE and PILING

For high pressure, high temperature water lines . . . for sewage outfall lines . . . for any job requiring fabricated steel pipe or piling of 14" O.D. or larger . . . Posey has the experience, facilities and skilled men to meet your requirements.

● *STEEL PLATE DIVISION*

Since 1910... *Posey has specialized in steel plate fabrication. Posey Iron has a wide background of engineering experience and know-how . . . and a reputation for delivering on time and within the budget. Let Posey Iron quote on your next job.*

POSEY IRON WORKS, INC.

LANCASTER, PENNSYLVANIA
NEW YORK OFFICE: GRAYBAR BUILDING

For more facts, use Request Card at page 18 and circle No. 378

distributor doings

Wives of Koehring distributors at the AED convention attend a luncheon at the Sheraton-Blackstone Hotel.

(*Continued from preceding page*)

to a two-year term as director of Region 11 of the Associated Equipment Distributors. Region 11 comprises the states of California, Nevada, Arizona, and the Territory of Hawaii.

Vulcan appoints six distributors

Vulcan Iron Works, Chicago, Ill., has appointed six distributors for its complete line of pile-driving and pile-extracting machinery and equipment.

J. J. Gregory & Son, Inc., 54 Water St., East Providence, R. I., will serve that state. Crane Service & Equipment Corp., 70 Cross St. E., Somerville, Mass., will cover New Hampshire, Maine, and Vermont, as well as Massachusetts.

Straits Engineering Co., Seymour & Easterday Sts., Saulte Ste. Marie, Mich., will have the Upper Peninsula of Michigan for its territory. Border Machinery Co., 1710 E. Paisano Drive, El Paso, Texas, will cover the Texas counties west of the Pecos River, and the nine southern counties in New Mexico. LaHave Equipment Limited, 14 Dufferin St., Bridgewater, Nova Scotia, will serve the provinces of Nova Scotia, New Brunswick, Cape Breton Island, Prince Edward Island, and Newfoundland. A. Dillon & Cia., Guayaquil, Ecuador, will be distributor for that country.

A-W appoints distributor

Austin-Western Hemisphere Co., Baldwin-Lima-Hamilton Corp., Aurora, Ill., has appointed Precision Machine and Equipment Limited, with branches at Sixth Ave. and Third St. East, Calgary, and 11915-111th Ave., Edmonton, as distributor for the province of Alberta.

The A-W line includes all-wheel drive and steer power graders, 3-wheel and tandem road rollers, hydraulic cranes, and street sweepers.

Yale & Towne names

The Materials Handling Division of The Yale & Towne Mfg. Co., Philadelphia, Pa., has appointed Freeman Materials Handling Co. a representative for the sales and service of its industrial lift trucks in the Toledo, Ohio, area.

The territory covered by the company will include 17 Ohio counties, and the counties of Hillsdale, Lenawee, and Monroe in Michigan.

James H. Brennan, general manager of the company, has headquarters at 501 Troy St., Toledo.

Hy-Way Heat names three dealers

Hy-Way Heat Systems, Inc., of Youngstown, Ohio, sole sales distributor for Hy-Way Machinery Co., has appointed three exclusive dealers to handle the Hy-Way company's oil heaters, tanks, combination units, and bunker boosters.

Brandeis Machinery & Supply Co., Louisville, Ky., will cover Kentucky, southern Indiana, and southern Illinois. E. K. S. Equipment Co., Grand Rapids, Mich., will serve the western half of Michigan. Road Machinery & Supply Co., Minneapolis, Minn., will cover Minnesota.

Four Wheel Drive starts dealer sales conferences

Four Wheel Drive Auto Co., Clintonville, Wis., truck-manufacturing firm, is carrying on a series of dealer sales conferences in various sections of the country. A Southwest dealer session at FWD's sales and service branch in Duncan, Okla., recently launched the conferences. The conferences are under the direction of G. F. DeCoursin, vice president of sales, and Lloyd L. Pernot, domestic sales manager.

FWD dealers in ready-mix, transport, oil-field, construction, road-maintenance, utilities, and related markets are included in the sales conferences, scheduled at Duncan, Okla.; Buffalo, N. Y.; Portland, Oreg.; Minneapolis, Minn.; and Indianapolis, Ind.

Five FWD market specialists are also participating in the program to discuss products and sales policies.

Product LITERATURE

For further information on any of the literature described in the following section, circle the designated number on the Request Card at page 18.

Concrete forming—a 56-page, copiously illustrated catalog describing the complete line of concrete forms, form ties, accessories, construction specialties, and highway products, available from the Universal Form Clamp Co. Makes a handy reference guide for anyone engaged in the forming of concrete.

Write to the Universal Form Clamp Co., Dept. C&E, 1238 N. Kostner, Chicago 51, Ill., or use the Request Card at page 18. Circle No. 131.

Diesel-powered tractor—a well illustrated booklet describing the Allis-Chalmers Model HD-21 turbocharged diesel-powered tractor. Stresses such features as the unit's 225 net engine horsepower, hydraulic torque-converter drive, operating ease and comfort, and matched power train. Matched equipment and accessories also illustrated with photos.

Write to the Allis-Chalmers Mfg. Co., Construction Machinery Division, Dept. C&E, P. O. Box 512, Milwaukee 1, Wis., or use the Request Card at page 18. Circle No. 36.

Vertical boom ditcher—a brochure on the Barber-Greene Model 784 crawler-type vertical boom ditcher. Stresses several features of the unit, including its dual-range Hydra-Crowd transmission, flexible drawbar, and its ready convertibility to a wheel ditcher. Generously illustrated throughout, it contains a 2-page photograph of the machine with all salient details recapitulated and identified as to their location on the machine.

Write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 30.

Guardrails—a folder describing the USS AmBridge highway beam guardrail. Discusses the manufacture and fabrication of the unit, including strength specifications. Also contains specific data on painting and installation. Illustrated with dimensional drawings.

Write to the American Bridge Division, United States Steel Corp., Dept. C&E, 525 William Penn Place, Pittsburgh 30, Pa., or use the Request Card at page 18. Circle No. 11.

Vibrating screens—a well-illustrated catalog describing the four basic types of Deister vibrating screens designed to size crushed stone, sand and gravel, slag, aggregate for hot-mix asphalt, and all other types of screenable materials.

Write to the Deister Machine Co., Dept. C&E, 1933 E. Wayne St., Fort Wayne 4, Ind., or use the Request Card at page 18. Circle No. 132.

Welding—a 16-page booklet of photographs and articles on welding. Many of the articles feature time and money-saving applications.

Write to the Hobart Brothers Co., Dept. AW-144, Dept. C&E, Hobart Square, Troy, Ohio, or use the Request Card at page 18. Circle No. 133.

Bucket drilling—a booklet describing and illustrating the advantages of bucket drilling as a method of excavating. On-the-job photos show Calweld earth-drilling machines excavating for tank burial, foundations, manholes, soil tests, and many other digging jobs. Stresses the complete elimination of all hand-digging, and the speed with which earth drilling is accomplished.

Write to Calweld, Inc., Dept. C&E, 7222 E. Slauson Ave., Los Angeles 22, Calif., or use the Request Card at page 18. Circle No. 29.

Wellpoint system—a copiously illustrated, 96-page brochure on the application and results of the Stang wellpoint system. Describes the system and required machinery in comprehensive detail. On-the-job photographs show its success on a wide variety of projects.

Write to the John W. Stang Corp., Dept. C&E, 8221 Atlantic Ave., Bell, Calif., or use the Request Card at page 18. Circle No. 85.

New type cement—a bulletin describing Top Brand cement, a new Belgian portland slag cement said to be particularly recommended for construction work. Comparative ten-

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designing and building whatever type rubber-mounted field service equipment you need — mounted on the truck of your choice

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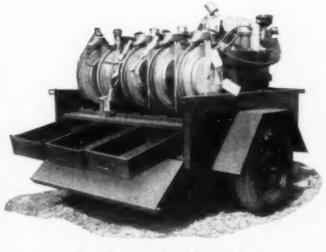
Use our engineering facilities, design know-how and experience to help meet *your* problems. Just pin this ad to your letterhead . . . we'll get in touch with you!



Small, two-wheel lubeunit

Medium-size work shop

CEMCO INDUSTRIES, Inc. GALION, OHIO

For more facts, use Request Card at page 18 and circle No. 379

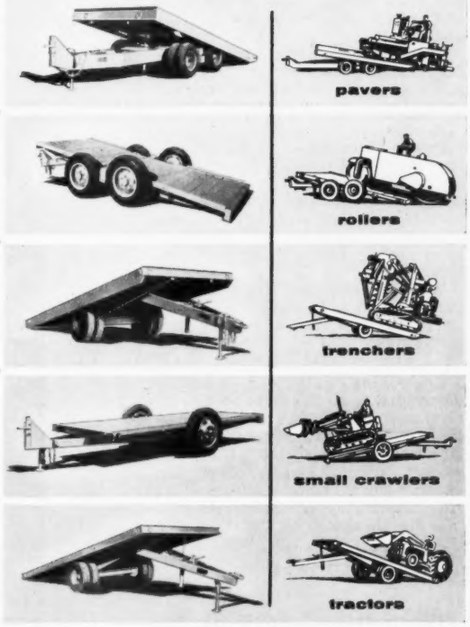
"OT-15" Over-the-wheels, 8' x 16'-6" platform. 18' and 20' platforms available. Eight wheels, dual assemblies, mounted on tandem axles with oscillating walking beam. 15 ton capacity. Also available with gooseneck for tractor towing unit.

"BT-10" & "CT-7" Extra low, load angle, between-the-wheels platform, 76" wide — either 14' or 16' long. Four single wheels mounted on tandem axles with oscillating walking beam. 10 ton capacity on "BT" . . . 7 ton on "CT".

"J-6", "8" & "10" Heavy duty over-the-wheels models. 8' x 14' platform —16' and 18' platforms available. Single axle, dual wheels. Capacity: "J-6", 6 tons; "J-8", 8 tons; "J-10", 10 tons.

"C-4" Extra low loading angle, between the wheels platform 8' x 14', 16' platform available. Two single wheels mounted on straight-thru H beam axle. 4 ton capacity.

"H-4" Over-the-wheels, 8' x 14' platform — 16' platform available. Single straight-thru axle, dual wheels. Completely equipped with heavy duty, first line trailer tires. 4 ton capacity.



• A variety of Tilt-Top models equipped with single or tandem axles . . . over, or between-the-wheel platforms . . . put mobility under all sorts of equipment from 4 to 15 tons . . . save the extra loading time and extra cost of larger more cumbersome trailers. ONE man can tilt, drive on a rig and be off to the next job in less than TWO minutes. See your MILLER distributor now—find out how MILLER'S fast between job loading and hauling . . . can often help you to save duplicating expensive equipment on several jobs.

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Miller® Tilt-Top Trailer Inc.

456-C S. 92nd St., Milwaukee 14, Wisc.

For more facts, use Request Card at page 18 and circle No. 380

sile and compressive strength diagrams, descriptive properties, and instructions for use.

Write to the Indussa Corp., Dept. C&E, 511 Fifth Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 134.

Winch equipment—a pocket directory of Braden winch equipment. Illustrations and brief descriptions of the firm's latest winch models, with all units classified and grouped according to their special uses. Illustrated data on many other items of Braden equipment, including power takeoffs, speed reducers, and power dividers, and information on accessories.

Write to the Braden Winch Co., Dept. C&E, P. O. Box 547, Broken Arrow, Okla., or use the Request Card at page 18. Circle No. 23.

Electric-driven pumps—an illustrated catalog sheet describing Barnes electric-driven self-priming centrifugal pumps. Includes a convenient selection table covering 21 direct-connected and belt-driven models. Complete specifications on these 1 to 50-horsepower pumps.

Write to the Barnes Mfg. Co., Dept. C&E, 651 N. Main St., Mansfield, Ohio, or use the Request Card at page 18. Circle No. 135.

Tractor for pipeline work—a booklet describing the International TD-9 crawler tractor equipped with Superior sideboom and blade backfiller. With the Superior sideboom and blade backfiller or anglefiller, the folder points out, the TD-9 is virtually a spread in itself on small pipeline construction jobs, lifting pipe loads as heavy as 17,000 pounds at a 4-foot overhang. Closeups of components; specifications. Booklet CR-640-G.

Write to the International Harvester Co., Dept. C&E, 180 N. Michigan Ave., Chicago 1, Ill., or use the Request Card at page 18. Circle No. 136.

Electrode selector guide—a handy 24-page guide to aid in selecting the M&T electrode best suited for any welding requirement. Electrodes are identified by type, AWS grade, and color coding. Data on chemical and physical analysis, as well as suggested uses.

Write to the Metal & Thermit Corp., Dept. C&E, P. O. Box 471, Rahway, N. J., or use the Request Card at page 18. Circle No. 137.

Power steering—a folder discussing Sheppard hydraulic power steering available for all self-propelled equipment. Illustrated with photos of various makes and types of equipment using the Sheppard unit. Also contains a chart of the units' gear ratings.

Write to Sheppard Diesels, Dept. C&E, 47 Middle St., Hanover, Pa., or use the Request Card at page 18. Circle No. 138.

Conveying equipment—a booklet describing Atlas Model 24 stationary belt conveyors. Gives specifications for the units, which are built in standard sections for 18, 24, 30, and 36-inch widths. Several power and capacity charts further illustrate the text. Information on accessories.

Write to the Atlas Conveyor Co., Dept. C&E, Clintonville, Wis., or use the Request Card at page 18. Circle No. 139.

Rear-ejection dumper—a bulletin describing the 32 or 22-ton Yuba Movall. Lists such features as faster dumping cycle, accurate spread, interchangeability with existing equipment, high maneuverability, and many others. Drawings, action photographs, specifications. Bulletin M-701.

Write to Yuba Consolidated Industries, Inc., Dept. C&E, 351 California St., San Francisco 4, Calif., or use the Request Card at page 18. Circle No. 140.

Versatile paver—a catalog emphasizing the versatility of the Koehring rubber-tire-mounted 16-E Twinbatch paver. On-the-job photos show the 16-E used as a central mix plant, pouring concrete for a roadway, and working in close on a building construction site. Includes table showing comparative production figures and other illustrations.

Write to the Koehring Co., Dept. C&E, 3026 W. Concordia Ave., Milwaukee 16, Wis., or use the Request Card at page 18. Circle No. 44.

Truck crane—a booklet describing the Lorain Moto-Crane Model MC-530. Details the unit's design and construction in text and photos. Data on accessories including a special wide-base 170-foot boom. Illustrated description of the crane's carrier.

Write to The Thew Shovel Co., Dept. C&E, 28th & Fulton Road, Lorain, Ohio, or use the Request Card at page 18. Circle No. 141.

Crushing plant equipment—a brochure dealing with the forthcoming heavy demand on the aggregate producing companies because of the Federal-Aid Highway Program. Asks several questions vital to continued high production at a crushing plant, and explains in illustrations and on-the-spot job reports how Cat-built equipment will help the producer to meet the demand. Form No. D758.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 142.

Drill supplies—a 50-page catalog describing the Acker line of soil sampling tools, rotary earth augers, diamond and shot core drills, earth-boring equipment, and drilling accessories and supplies. Generously illustrated with photographs and drawings. Catalog 58.

Write to the Acker Drill Co., Dept. C&E, P. O. Box 830, Scranton, Pa., or use the Request Card at page 18. Circle No. 143.

Simplified lubrication—a 196-page lubrication recommendation booklet presenting a simplified plan for lubricating construction machinery on projects where a large variety of equipment is involved. Points out how six basic Caltex lubricants can take care of nearly all construction-machinery requirements. Covers all the recommendations developed for a wide range of equipment.

Write to the Caltex West Co., Division of California Texas Oil Co., Ltd., Dept. C&E, 380 Madison Ave., New York 17, N. Y., or use the Request Card at page 18. Circle No. 32.

INTERNATIONAL model A-182 with 4-yard dump body is ready for immediate shipment

INTERNATIONAL model ACF-182. Big payload, plus short over-all length and wheelbase, with 8-yard body and tand

INTERNATIONAL TRUCK

Hydraulic form pin puller—a folder describing the Nelson hydraulic form pin puller. Connecting to pins regardless of heads, the unit has an adjustable stroke permitting it to pull pins up to 30 inches in length, according to the literature. Illustrated with on-the-job photographs.

Write to the Nelson Dowel Holder Co., Dept. C&E, Lebanon, Tenn., or use the Request Card at page 18. Circle No. 144.

Wood for highways—a booklet entitled "How to Specify and Use Pressure Treated Wood for Highways." Presents basic specification requirements for each illustrated major highway use of pressure treated wood. Tables show minimum retentions required for all types of preservatives when used in major species of highway lumber and timber. Also lists titles of other literature dealing with the subject.

Write to the American Wood Preservers Institute, Dept. C&E, 111 W. Washington St., Chicago 2, Ill., or use the Request Card at page 18. Circle No. 145.

Wrought-iron conduit—a booklet describing National Electric's corrosion-resistant wrought-iron electrical conduit. Dimensional and weight data; tabular listing of maximums of wire fill for rewiring existing raceways with various types of cable; information on couplings and 90-degree elbows. Illustrated with drawings, tables, and photographs of actual installations.

Write to the National Electric Products Corp., Dept. C&E, Room 900, 2 Gateway Center, Pittsburgh 22, Pa., or use the Request Card that is bound in at page 18 of this issue. Circle No. 34.

Clamshell buckets—a bulletin describing the Schield Bantam line of clamshell buckets. Contains complete specifications, as well as action photos, of both the general-purpose ⅜-yard and special ½-yard rehandling buckets. Bulletin A-266.

Write to the Schield Bantam Co., Dept. C&E, 200 Park St., Waverly, Iowa, or use the Request Card at page 18. Circle No. 7.

Ephemeris—the 98-page 1958 edition of the Gurley Ephemeris. Contains charts that simplify the computation of Polaris, as well as an almanac of 28 stars for determining stellar observations. Also includes charts for the sun and Polaris, definitions of astronomical terms, and many sample problems. Step-by-step instructions for those using optical plummets for the first time. Available to practicing surveyors and engineers, instructors and students of surveying.

Write to W. & L. E. Gurley, Dept. C&E, 518 Fulton St., Troy, N. Y., or use the Request Card at page 18. Circle No. 146.

Binned materials indicator—literature describing the Bin-Dicator, an automatic bin level indicator for all bulk materials. Easily mounted on the outside of the bin, and actuated by the flow of the materials through the bin, the unit automatically controls signal lights, horns, bells, conveyors, or feeding machinery, according to the text. Illustrated with photos, diagrams, and drawings.

Write to the Bin-Dicator Co., Dept. C&E, 13946 Kercheval Ave., Detroit 15, Mich., or use the Request Card at page 18. Circle No. 147.

Concrete forming—a 60-page catalog showing the latest Williams concrete-form hardware for both light and heavy construction, and containing helpful data on the use of these devices for better concrete forming. Illustrated with tables for economical form design, diagrams, drawings, and many on-the-job photographs.

Write to the Williams Form Engineering Corp., Dept. C&E, 1501 Madison Ave. S. E., Grand Rapids 7, Mich., or use the Request Card at page 18. Circle No. 148.

Frameless steel buildings—a brochure describing frameless steel buildings that utilize the Steelox panel both for structural support and exterior finish in a single unit. The buildings come in a wide range of sizes, and are quickly erected, according to the literature. Form SX-13857.

Write to Armco Drainage & Metal Products, Inc., Dept. C&E, 703 Curtis St., Middletown, Ohio, or use the Request Card at page 18. Circle No. 149.

Metal lath specs—"Metal Lath Specification Check List," a bulletin to aid in the writing of metal lath and plaster specifications. Lists required materials; covers each of the principal metal lath assemblies including partitions.

Write to the Metal Lath Manufacturer's Association, Dept. C&E, 636 Engineers Bldg., Cleveland 14, Ohio, or use the Request Card at page 18. Circle No. 150.

Chain saw trouble-shooting—a generously illustrated manual containing practical tips on how to keep saw, bars, chains, and sprockets in top working condition. Covers protective maintenance, causes of chain damage, and contains a section on the Do's and Don't's of saw chain filing. Data on how to set correct chain tension.

Write to the Atkins Saw Division, Borg-Warner Corp., Dept. C&E, Indianapolis 9, Ind., or use the Request Card at page 18. Circle No. 151.

Dust collection—a bulletin on dust collection equipment from The Ducon Co., Inc. Describes and illustrates the company's complete line of wet and dry type dust collectors and auxiliary equipment, including cyclones, centrifugal and dynamic washers, dust and fiber filters, discharge gates, and trickle valves. Bulletin No. A-9157.

Write to The Ducon Co., Inc., Dept. C&E, 147 E. Second St., Mineola, L. I., N. Y., or use the Request Card at page 18. Circle No. 67.

Arc-welding process, equipment—a catalog of Heliweld equipment for Air Reduction's inert-gas-shielded tungsten arc-welding process for joining light gages of "hard-to-weld" metals. Discusses the advantages of Heliwelding, and describes several units of manual, semi-automatic, and automatic equipment. Information on accessories. Illustrated with drawings and photographs.

Write to the Air Reduction Sales

(*Continued on next page*)

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wy-Duty INTERNATIONAL Dump Trucks
dy to roll on your construction job!

truck *right now?* Call your INTERNATIONAL Dealer for immeelivery from the INTERNATIONAL *Truck Factory Inventory Pool.*
can select the construction dump truck you need with the equipyou want, fully assembled, all ready to back under the shovel.
from conventional or cab-forward models complete with bodies, frame reinforcements, tow hooks, double-faced front directional , rear view mirrors both sides, heater-defrosters and oil filter.
can have any or all the following optional equipment installed in er of hours: cab protectors, extension sides, swinging partitions reader aprons.
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4 MODELS TO MEET YOUR NEEDS

tional trucks: INTERNATIONAL -164 with 4-yard dump body, 129- 264 cu. in. engine, 15,000 lbs. rear axle, heavy-duty springs, e brakes, 8.25 x 20 10-ply tires. s. GVW.

NATIONAL model A-182 with 4-yard ody, 141-in. w.b., 308 cu. in. en-000 lbs. 2-speed rear axle, heavy-rings, double oversize brakes, 0 10-ply tires. 21,000 lbs. GVW.

Cab-forward trucks: INTERNATIONAL model AC-1892 with 5-yard dump body, 137-in. w.b., 308 cu. in. engine, 5-speed, constant-mesh transmission, 18,500 lbs. 2-speed rear axle, oversize brakes, 10.00 x 20 12-ply tires. 25,500 lbs. GVW.

INTERNATIONAL model ACF-182 with 8-yard dump body, 149-in. w.b., 308 cu. in. engine. 28,000 lbs. tandem drive rear axle, oversize brakes, 9.00 x 20 10-ply tires. 33,000 lbs. GVW.

INTERNATIONAL HARVESTER COMPANY, CHICAGO
Motor Trucks • Crawler Tractors
Construction Equipment • McCormick® Farm Equipment and Farmall® Tractors

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For more facts, use Request Card at page 18 and circle No. 381

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For use at temporary and permanent locations—at stock piles and by bituminous material contractors at the job site. Capacity: 15-18-20-30, 50 tons.

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For more facts, use Request Card at page 18 and circle No. 382

SWENSON SPREADERS *Speed Sealcoating!*

Spreads Salt or Chloride for DUST CONTROL or SOIL STABILIZATION

write for complete information

SWENSON SPREADER & MFG. CO. Lindenwood, Illinois

For more facts, use Request Card at page 18 and circle No. 383

WISCONSIN TILT TRAILER *Chosen By Comparison*

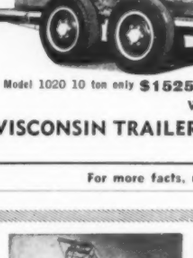
Efficient	1 man operation
Economical	low as $895.
Big Capacity	3-16 ton
Safe	Wide Oak Deck
Durable	Exclusive rear channel mounting, prevents tearing away. 8 extra braces inside frame.
Low loading angle	No blocks, skids, or ramps needed.
All wiring	enclosed.
Automatic Hydraulic Deck Control	"EASY UP" "EASY DOWN"

Model 1020 10 ton only **$1525.** fob factory, w/tires & deck, plus tax

Write for details & name of dealer

WISCONSIN TRAILER CO., 1949 N. 121st St., Milwaukee 13, Wis.

For more facts, use Request Card at page 18 and circle No. 384



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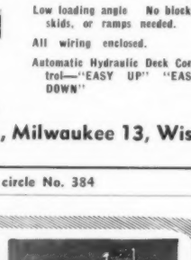

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SUGGESTION—To faraway users. Order cores only without fibres but ready to fill.

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Also Cores Made to Your Specifications

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Road Builders — it's sensational!

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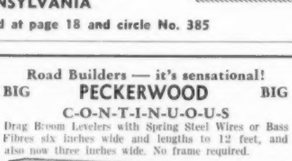
C-O-N-T-I-N-U-O-U-S

Drag Broom Levelers with Spring Steel Wires or Bass Fibres six inches wide and lengths to 12 feet, and also now three inches wide. No frame required.



Also furnished filled with Palmyra-Hickory or Bass Fibres or even Spring Steel Wires.

WE SHIP WORLDWIDE—IMMEDIATELY

In stock — ONLY $3.50 FOOT

Length 1', 6", 8', or 12". Wt. approx. 5½ lb. (foot)

THE LITTLE PECKERWOOD

3" wide, 15" long, with two bolts, fits your present frame.

ONLY $2.50 EACH

For more facts, use Request Card at page 18 and circle No. 386

(Continued from preceding page)

Co. Dept. C&E, 150 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 33.

Special lubricants—a folder discussing the proper lubrication of open gears, dipper sticks, and cams on construction machinery. Describes 15 Whitmore formulas, stressing the several advantages of each.

Write to The Whitmore Mfg. Co., Dept. C&E, 3816 Iron Court, Cleveland, Ohio, or use the Request Card at page 18. Circle No. 49.

Asphalt plant—literature describing the new White Model L-20 portable hot-mix asphalt plant. Discusses the 20 to 25-tph unit's extra large dryer; all air-operated controls; new dust-control system; and other improvements. Circular No. 47-A.

Write to the White Mfg. Co., Dept. C&E, 1227 W. Beardsley Ave., Elkhart 9, Ind., or use the Request Card at page 18. Circle No. 48.

Wire rope, chain fittings—an illustrated catalog describing the complete Crosby-Laughlin and Lebus line of drop-forged fittings for wire rope and chain. Includes specifications, dimensions, rated capacities, and weights for all items. Catalog No. 950-2.

Write to the Crosby-Laughlin Division, American Hoist & Derrick Co., Dept. C&E, P. O. Box 570, Fort Wayne, Ind., or use the Request Card at page 18. Circle No. 152.

Fittings for scaffolds—literature describing the use of Amidon fittings in the construction of adjustable and frame scaffolds from 1-inch pipe. Illustrated with photographs of the various fittings, as well as on-the-job shots of scaffolds built with them.

Write to the Amidon Engineering Co., Dept. C&E, 38369 Cleveland Road, Elyria, Ohio, or use the Request Card at page 18. Circle No. 153.

Timber structures—1958 edition of TECO's "Typical Lumber Designs". Contains over 300 typical designs of timber structures, from basic types of trussed rafters and heavy roof trusses to highway structures, towers, and bridges. Data includes details of timber connector design, lumber specifications, and material lists.

Write to the Timber Engineering Co., Dept. C&E, 1319 18th St. N. W., Washington 6, D. C., or use the Request Card at page 18. Circle No. 154.

Dual-purpose generator—literature describing the Kurland Combinator, a generator that supplies both ac and dc electricity, and is designed for installation on truck or tractor. Illustrated with photographs. Brief specifications.

Write to Kurland Motors, Inc., Dept. C&E, 1134 Broadway, Denver, Colo., or use the Request Card at page 18. Circle No. 61.

Construction handbook—a completely revised, pocket-sized, 160-page Construction Data Handbook from the A. C. Horn Co., Inc. Contains detailed information on almost 100 Horn construction and maintenance specialties. Illustrated with over 30 tables, guides, and time-saving charts.

Write to the A. C. Horn Co., Inc., Division of Sun Chemical Corp., Dept. C&E, 10-10 44th Ave., Long Island City 1, N. Y., or use the Request Card at page 18. Circle No. 35.

Hydraulic hoists—a descriptive broadside on Speedlift hydraulic hoists. Illustrations include a cutaway view of Daybrook's sealed cylinder; close-ups of special features on the hoists and pumps; and full views of standard hoist models available for every chassis, dump-body style, or power application.

Write to the Daybrook Hydraulic Division, Young Spring & Wire Corp., Dept. C&E, Bowling Green, Ohio, or use the Request Card at page 18. Circle No. 155.

Engine fuel—a booklet entitled "Fuel Oil and High RPM Diesel Engines". Applies to all makes of diesels which operate between 1,200 and 3,000 rpm. Points out the effects of various grades of fuel on diesel engine life and performance. Helpful fuel selection chart included.

Write to the Detroit Diesel Engine Division, General Motors Corp., Dept. C&E, 13400 W. Outer Drive, Detroit 28, Mich., or use the Request Card at page 18. Circle No. 60.

Automatic highway plane—a fact sheet describing the method and advantages of finishing roads with the Eversman Model 410 automatic highway plane. Shows several photographs of the unit in action. Specifications included.

Write to the Eversman Mfg. Co., Dept. C&E, 1145 Fifth St., Denver 4, Colo., or use the Request Card at page 18. Circle No. 59.

Prestressed concrete—a brochure briefly covering the history and development of prestressed concrete, and explaining the Prescon system of post-tensioning. Includes application examples in numerous types of structures, detailed technical data, estimated labor for placing, guide specifications, and detail drawings. Brochure No. 2.

Write to The Prescon Corp., Dept. C&E, P. O. Box 4186, Corpus Christi, Texas, or use the Request Card at page 18. Circle No. 62.

Steel washers—literature describing Whitehead washers made from prime steel to exact A.S.T.M. specification A-325. According to the literature, standard sizes stocked for immediate heat treat are ½, ⅝, ¾, ⅞, 1, 1⅛, and 1¼-inch.

Write to the Whitehead Stamping Co., Dept. C&E, 1665 W. Lafayette, Detroit 16, Mich., or use the Request Card at page 18. Circle No. 125.

Asphalt road building—a booklet discussing road building with Texaco asphalt by the pressure distributor method. Includes step-by-step instructions in the use of various types of material for a wide range of job requirements. Also contains instructions for unloading Texaco asphalt from steam coil tank cars. Copiously illustrated with action photos and several helpful charts and tables.

Write to The Texas Co., Asphalt Sales Division, Dept. C&E, 135 E. 42nd St., New York 17, N. Y., or use the Request Card at page 18. Circle No. 64.

SALES REPRESENTATIVES

or dealers wanted to sell concrete saw blades direct to road-builders and general contractors. Tremendous repeat sales . . . high commissions . . . provide an exceptional opportunity if you are now selling to concrete paving contractors. Submit complete data including territory covered. All replies confidential. **Address Box 509, Contractors and Engineers, 470 Fourth Ave., New York 16, N. Y.**

STOP that WATER

A clear liquid which penetrates 1" or more into concrete, brick, stucco, etc., seals—hold 1250 lbs. per sq. ft. hydrostatic pressure. Cuts costs. Applied quickly—no mixing—no cleanup—no furring—no membranes. Write for technical data—free sample.

HAYNES PRODUCTS CO., OMAHA 3, NEBR. With FORMULA No. 640

Bearing pads—literature describing Neosorb bridge and structural bearing pads. Data on required physical properties, as well as results of accelerated tests to determine long-term aging characteristics. Also attached is spex sheet on Sorbtex preformed fabric bridge pads. Illustrated with drawings.

Write to the Voss Belting & Specialty Co., Preformed Pad Division, Dept. C&E, 5645 N. Ravenswood Ave., Chicago 26, Ill., or use the Request Card at page 18. Circle No. 86.

Truck crane—a 24-page catalog describing the 25-ton Michigan Model T-24 truck crane. Text and photos highlight the design and operating features of the truck, the upper mechanism, and the front end. Also describes the unit's complete selection of quick-change front-end attachments.

Write to the Construction Machinery Division, Clark Equipment Co., Dept. C&E, P. O. Box 599, Pipestone Road, Benton Harbor, Mich., or use the Request Card at page 18. Circle No. 156.

Mixer—a folder describing the Barber-Greene Model 828 "stabilization plant", said to be adaptable to handling any water-mixed stabilized base materials in excess of 400 tph. Photos, drawings, condensed specifications. Data on typical feeding methods.

Write to the Barber-Greene Co., Dept. C&E, 400 N. Highland Ave., Aurora, Ill., or use the Request Card at page 18. Circle No. 31.

Steel wear parts—a catalog detailing wear parts made of BR4 steel, from the Latrobe Steel Co. Contains scores of diagrams showing exact shape and size of such parts as shot blast liners for shot blasting equipment, pugmill tips, chute liners, and liners for sand-handling equipment.

Write to the Latrobe Steel Co., Dept. 00, Dept. C&E, 1944 Haller St., Latrobe, Pa., or use the Request Card at page 18. Circle No. 20.

Cable handler — an illustrated fact sheet on the UNCO cable handler, a tool said to eliminate entirely injury to hands when working with cable. Stresses such features of the tool as its ability to rewind cable on a winch, guide it so that there is no overlap or crisscross, and several others.

Write to the U. N. Co., Inc., Dept. C&E, 1255 Bolyston St., Boston 15, Mass., or use the Request Card at page 18. Circle No. 124.

Company history—a handsome 40-page brochure presenting a history of the Koehring Co., its divisions, and its subsidiaries. Traces the growth of the company from its inception in 1907 to the present. Scores of illustrations, accompanied by brief specifications, show the wide range of Koehring equipment.

Write to the Koehring Co., Dept. C&E, 3026 W. Concordia Ave., Milwaukee 16, Wis., or use the Request Card at page 18. Circle No. 43.

Equipment parts service—literature from Caterpillar discussing the kind of parts service a machine owner should expect from a dealer. Written in narrative form, it tells the story of how one contractor is keeping operating costs down by using the facilities and services offered by Caterpillar dealers. Illustrated throughout with photographs and drawings. Form DE766.

Write to the Caterpillar Tractor Co., Dept. C&E, Peoria, Ill., or use the Request Card at page 18. Circle No. 157.

The New Jersey Motor Truck Association is establishing a radar system that will be used to discourage truck drivers from speeding.

Asphalt emulsion stabilizer—a bulletin describing the properties, performance data, and uses of Indulin C in asphalt emulsions. Details the benefits provided by Indulin C in medium-setting-type mixing grade emulsions, and in penetration-type low viscosity emulsions. Bulletin No. 101C.

Write to the West Virginia Pulp & Paper Co., Polychemicals Division, Dept. C&E, Charleston A, S. C., or use the Request Card at page 18. Circle No. 37.

Ripper—literature on the C-R-C Kelley ripper. Hydraulic pistons reportedly maintain a constant ripping depth, described as 7 feet for the largest model.

Write to Crutcher-Rolfs & Cummings, Inc., Dept. C&E, P. O. Box 2073, Houston, Texas, or use the Request Card at page 18. Circle No. 130.

Associates Discount has equipment financing plan

Associates Discount Corp., South Bend, Ind., is now offering a systematic program for contractors that will allow them to replace heavy equipment and modernize old equipment without depleting working funds. The terms of the plan permit a contractor to take advantage of write-off methods of figuring equipment depreciation.

The firm also has available a 40-page book, "Money to Grow On", which explains the mechanics of equipment financing, fixed asset loans, advances for special situations, and other services.

Galion Iron Works names district representative

Richard G. Smith has been made the district representative for Galion Iron Works & Mfg. Co. in the states of Michigan, Indiana, Illinois, and Wisconsin. He takes over the territory formerly covered by Elmer B. Kelly. For the past 2½ years, Smith has served as factory demonstrator on Galion graders and rollers. Before joining the company, he worked with contractors in Nebraska and as a factory demonstrator for another firm.

Kelly, with Galion for 35 years, will continue to serve as Galion sales representative in the northwest part of Ohio.

LIGHTNING MULCHER
REINCO MODEL-7M30

- 25 TONS PER DAY
- THREE MAN CREW
- NO BELT ADJUSTMENT
- DIRECT DRIVE
- SIMPLIFIED MAINTENANCE
- ADJUSTABLE CHOPPING

DESIGNED SPECIFICALLY FOR MULCHING

REINCO ENGINEERING & MFG. CO.
106 GRANDVIEW AVE., N. PLAINFIELD, N. J.
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Easiest to MOVE!

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PORTABLE TRUCK SCALES
Engineered for rugged use in the field. Low initial cost, no maintenance. Can be used as PITLESS SCALE saves on pit costs.
CAPACITIES: 20 to 52 tons. DECK LENGTHS 18 to 43 ft.
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Precision Scales since 1918

HURMAN SCALE COMPANY
156 N. 5th St. CE-1, Columbus, Ohio
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PLASTER AND MORTAR MIXERS
5 sizes 2 to 12 Cu. Ft. Electric or gasoline Power throw-out on smaller models, disc clutch on larger
3½ Cu. Ft. NON-TILTING CONCRETE MIXER
Drum 36" dia. x 27" wide. B & S Air-cooled engine 4.5 Hp. at 2700 RPM
4 BLADED POWER TROWELS
24", 29", 34", 44" dia. B & S Air-cooled engines. Clutch and speed controls on handle
MULLER MIXER
CONCRETE MIXERS TILTING TYPE
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for high output with low price and maintenance

Simple Design, Fewer Components; large scale production; a half-century of experience; explain the leadership of Muller Machines. Muller's low prices and low maintenance costs make Muller Machines the best investment for the contractor.

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Created for savings in filing space, time and effort, Gliders are available for print widths of 20" to 48". Gliders obsolete peg-type filing and hole-punching.

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For longer print "life" and for efficiency, durability and economy in vertical filing, specify Glider. Order now through the best office suppliers or write for illustrated literature.

MOMAR INDUSTRIES 4323 West 32nd St. Chicago 23, Ill.
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▲ THIS Insley 10-ton truck crane, equipped with a Blaw-Knox ⅜-yard-capacity bucket and a 40-ton boom, was among the first units of equipment used to clear the rundown area which is giving way to the final stage of Pittsburgh's progressive Urban Redevelopment Program. In less than six months after starting work, the Homestead Wrecking Co. cleared more than 200 parcels of property in the city's condemned lower hill area.

Axle company announces expansion program

The Rockwell Spring & Axle Co., Coraopolis, Pa., has signed agreements with two foreign manufacturers, in Brazil and Germany, according to a recent announcement.

Rockwell and Companhia Brasileira de Material Ferroviario of Sao Paulo have formed a new company, Cobrasma-Rockwell Eixos S. A. It will produce front and rear axles for heavy-duty trucks.

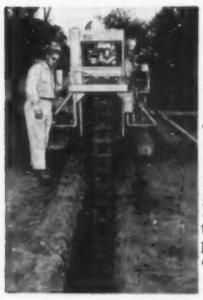
The wholly-owned Swiss subsidiary, Rockwell Federn & Achsen, A. G., has granted licenses to Zahnradfabrik Friedrichshafen, A. G., of Friedrichshafen, Germany, to manufacture axles, brakes, and universal joints of Rockwell design. These will be produced in West Germany.

THE INTERNATIONAL TD-24 crawler tractor shown here is one of six such units used on a rebuilding and widening job on U. S. Highways 85 and 94 at Glorietta Pass, fifteen miles east of Santa Fe, N. Mex. Metropolitan Paving Co. of Albuquerque is handling work on the 3.8-mile stretch. The crawler-tractor units and two International Payscrapers will have moved two million cubic yards of material when the job is completed. Seventy per cent of the material is rock, requiring blasting from sheer bluffs in the pass ranging from 100 to 200 feet high. The site of the job, the highest point on the Santa Fe Railroad, was part of the old Santa Fe Trail along which the pioneers journeyed on their way to the West. The new 4-lane roadway will cost over $1 million per mile for grading alone.

3 FAST RUGGED LOW COST

Pow-R-Ditchers

A Model For Nearly Every Need



Model 524T Pow-R-Ditcher

Lowest priced BIG ditcher on the market! Digs 8"-24" wide at speeds of 1'-15' per minute. One man operation. Ideal for contractors, municipalities, utilities, etc.

Model 4T Pow-R-Ditcher

The Vermeer "Midget Ditcher" digs 6"-14" wide and is only 6' high, 13' long, 48" wide. Easily transported on a pick-up truck. Very maneuverable and ideal for footings, cable, gas, water and sewage lines.

Model W-2 Pow-R-Ditcher

Smallest of the Pow-R-Ditchers, the W-2 digs 2½"-4" wide and 3' deep. For gas service, electrical service and shallow water lines.

Write For Literature and Low Prices on the Complete Vermeer Pow-R-Ditcher Line

Thousands of Pow-R-Ditchers used from coast to coast. Learn what low ditcher prices really mean! Write for name of nearest dealer.

VERMEER MANUFACTURING CO.

1437 W. WASHINGTON • PELLA, IOWA

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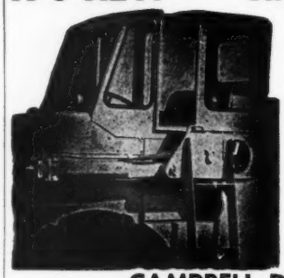
IT's NEW --- The Campbell Sliding Cab

for the models HU, HH, and HO

"Payloaders"!!!



This sturdy, modern design offers features long desired by "PAYLOADER" operators, among them—Sliding top, ball bearing mounted on steel channel—Rubber seals to insure weather tightness—Permanently mounted access ladder —Rear view mirror—Tinted safety glass windshield and skylight.

Investigate **this completely new design in "Payloader" Cabs by calling your "Payloader" distributor, or contact**

CAMPBELL DETACHABLE CAB CO.
WAUCONDA, ILLINOIS

For more facts, use Request Card at page 18 and circle No. 392

McCARTHY AUGER DRILLS.... ....for EVERY PURPOSE

Heavy-Duty Vertical auger drill gives you more profit per job by drilling from 3 to 24 in. diameter holes 400-800 ft. per day.

Trench-type auger drill speeds pipeline work by drilling under roads, RR beds; readily equipped with pipe-pusher.

These two McCarthy Auger Drills speed work and cut costs in a variety of contracting jobs — blast hole, foundation and deep post hole drilling, dewatering, exploration; and underground pipeline installation. Bid lower, work faster and profit more with these two great McCarthy Auger Drills. Contact your nearest representative or write direct for Bulletin M-100 (vertical) and Bulletin M-107 (trench-type).

Manufacturer of Drilling Equipment Since 1901

THE SALEM TOOL CO.

806 S. ELLSWORTH AVE. • SALEM, OHIO, U. S. A.

For more facts, use Request Card at page 18 and circle No. 393

Film demonstrates machine

A 12-minute sound and color motion picture, "The No. 933 Traxcavator", has been released by the Caterpillar Tractor Co., Peoria, Ill., showing the machine on a variety of jobs, and on all types of excavating and material-handling work.

The film also demonstrates how the bulldozer blade, light material-handling bucket, and other attachments tailor the No. 933 to special applications.

Showings of the motion picture may be arranged through Caterpillar dealers.

Support your Red Cross
Help those in need of help

SHENLEY PARK, Pittsburgh, Pa., is the scene of this excavating job, where the Gar Wood 75B backhoe is digging out a new spillway for the Panther Hollow Lake. The ¾-yard excavator is owned by Dan Construction Co., of Pittsburgh.

SYNTRON CONCRETE VIBRATORS & FLOATS

Save time and labor settling and finishing concrete . . .

SYNTRON Vibratory Floats take the hard work out of floating concrete. Their 3600 vibrations per minute produces a denser, stronger vibrated concrete — making stronger, safer and more durable floors, side walks, drives, etc.

SYNTRON Electromagnetic Form Vibrators, equipped with quick-acting vise clamps assure faster more uniform settling of concrete.

Faster settling and handling means reduced costs — increased production and profit.

Write for FREE catalog data. C558

SYNTRON COMPANY
22 Lexington Ave. Homer City, Pa.

For more facts, use Request Card at page 18 and circle No. 394

Scow mover devised

Engineers at the Clinton Point plant of New York Trap Rock Corp., West Nyack, N. Y., have devised a new scow mover, to replace the two-drum standard hoist which utilizes mechanically operated controls. The machine consists of two separate units with individual motors, and hydraulic drive from the motor to the speed reducer. An air-operated clutch and brake are located between the reducer and cable drum. Remote controls allow the operator to work from an elevated position.

Westinghouse Air Brake elects Hanley director

Edward J. Hanley, president of Allegheny Ludlum Steel Corp., has been elected to the board of directors of Westinghouse Air Brake Co., Pittsburgh, Pa. Hanley, who has been with Allegheny Ludlum since 1936, was elected to its board of directors in 1947 and became president of the corporation in 1951.

BEAT "DOWN-TIME" WITH Hobbs HOUR METERS

For better performance and longer service, get protective maintenance done ON TIME! Hobbs Hour Meters indicate to the HOUR and MINUTE when maintenance and service functions are due — at a glance.

FOR DIRECT CURRENT

Indicates operating time on all types of equipment powered by internal combustion engines — gasoline or diesel. Tells when lubrication, oil and filter changes, overhaul, etc. are due. Not a revolution counter, but a true electric timing instrument. Ruggedly built . . . easy to install . . . reads at a glance.

FOR ALTERNATING CURRENT

Indicates operating time of any equipment powered by alternating current — motor generating sets, conveyor systems, etc. Small, compact, easy to install. Designed and built for years of service.

● Distributors in Principal Cities
WRITE FOR CATALOG 600

JOHN W. Hobbs CORPORATION A DIVISION OF STEWART WARNER
2067 YALE BLVD.
SPRINGFIELD, ILLINOIS

For more facts, circle No. 396

ALWAYS, More and Better Compaction with BMCO'S SELF-PROPELLED ROLLER

MODEL SPR-9
4 SPEEDS FORWARD — 4 SPEEDS REVERSE
The finest "self-propelled" pneumatic tired roller . . . ANYWHERE! The largest power unit of any roller in its class . . . larger displacement . . . more horsepower with a torque converter as standard equipment. The SPR-9 is rugged . . . durable . . . dependable, and only BMCO has complete oscillation on all wheels! IT IS IMPOSSIBLE TO OVER-LOAD ANY ONE TIRE! All wheels act independently in this exclusive design . . . each bearing its share of the load. As a result, better traction and more uniform compaction is attained, more quickly than by any other make of roller!

MODEL SPR-9B
The same specifications as the SPR-9, except: a smaller power unit and heavy duty industrial type clutch . . . however, this power unit is still more powerful than all others in its class . . . same 4 forward speeds . . . same everything as in the "deluxe" model, but approximately $1,000 less.

OTHER QUALITY ITEMS IN THE BMCO LINE:

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SAN ANTONIO 6, TEXAS

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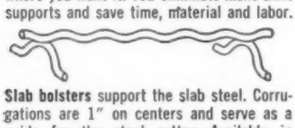
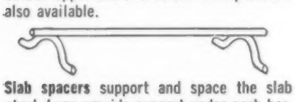
How to Space Reinforcing Steel in Concrete

Sure-Grip accessories help you do a better job of spacing reinforcing steel in concrete because they position the steel exactly where you want it. You eliminate make-shift supports and save time, material and labor.



Slab bolsters support the slab steel. Corrugations are 1" on centers and serve as a guide for the steel setter. Available in heights up to 2" and in 10' lengths. Slab bolster upper and slab bolster with plate are also available.



Slab spacers support and space the slab steel. Legs provide support under each bar. Fabricated to your specifications.

Beam bolsters support the bars from the soffit form in beams. Legs spaced 2" on centers. Heights up to 3". Stocked in 5' lengths. Also available with two longitudinal wires along legs for use in upper layers of steel.

High chairs support steel in upper layers of slab. Stocked in heights from 2" to 6½" with ¼" graduations. Can be used as a screed chair. Special high chairs have cross wires welded to legs for setting on lower layer of bars.

Continuous high chairs support upper slab steel and eliminate carrier bars required with individual supports. Legs are 12" on centers. Fabricated to your specifications.

Bar chairs support miscellaneous steel in the slab. Stocked in ¾", 1" and 1½" heights.

FREE — Mail the coupon below for 48 page illustrated catalog of concrete accessories and name of your nearest Sure-Grip dealer.

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516 Kercher Street, Miamisburg, Ohio
Without obligation, send me your **free** 48 page catalog and the name of my nearest Sure-Grip dealer.

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NEW!
Vibration-free Long-throw FLOOD LIGHT

Model 120-56-300

STURDILITE
Longer life—brighter lighting

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Safest Connections for Pile Driver Hose
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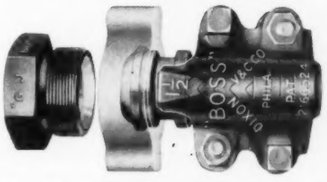
"GJ-BOSS"
GROUND-JOINT FEMALE COUPLING STYLE X-34



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Publishers postscript

The bits and pieces for this column are being put together during the National Sand & Gravel—National Ready-Mixed Concrete Association Convention in Chicago, the fourth major convention our C&E staff has covered within six weeks. Before this column appears, we will have covered the National Crushed Stone Association Convention, again in Chicago. Small wonder we call the Hilton Hotel our home away from home during January and February.

Having attended dozens of contractor, distributor, and producer meetings starting with the Cleveland Road Show twenty years ago, I suppose I should have words of wisdom as to the place of conventions and exhibits in our field. But somehow at the moment I'm either too pooped to be a pundit or too crowded in the elevator to see the broad industry picture.

But surely the fact that the great majority of successful outfits are active in association work and make a real effort to attend conventions year after year is a healthy sign.

Undoubtedly a few of the most faithful have never yet seen the inside of a formal meeting session. They must find the practical help they want or the industry pulse beat they are trying to take in informal lobby or bar visits with suppliers and competitors or by careful inspection of the equipment and materials on exhibit. Never be too sure the other fellow is wasting his convention time just because he misses a speech or a banquet.

Thousands of CONTRACTORS AND ENGINEERS readers have had first-hand evidence of our 1958 brand of convention activity in recent weeks. Three Convention Dailies have been published—one at American Road Builders' Convention, the second at Associated Equipment Distributors Convention, and the last at Sand & Gravel—Ready-Mixed Convention. It has become commonplace to see as many Convention Dailies as local papers in the convention hotel coffee shops. It has taken a heap of hustle and much midnight oil burning to put a Daily to press so that copies are at hotel room doors before some of the hardier souls are even back from their night on the town.

My hat is off to Editor Quirk, Managing Editor Darden, and our three field editors, Ralph Monson, Bill Allen and Tony Mavroudis, who have covered meetings with pen and camera when they'd infinitely prefer to be out covering construction jobs in the field. Thanks to them, we have word from the leaders of the several associations, from our advertisers, and from quite a number of readers that the Dailies have served a worthwhile purpose. Now it's on with the main show, meaning better and (the publisher hopes) bigger regular issues of C&E itself. We'll be seeing you.

Don Buttenheim
PUBLISHER

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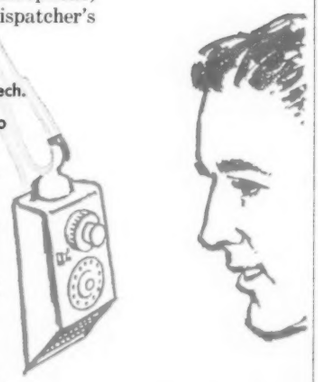

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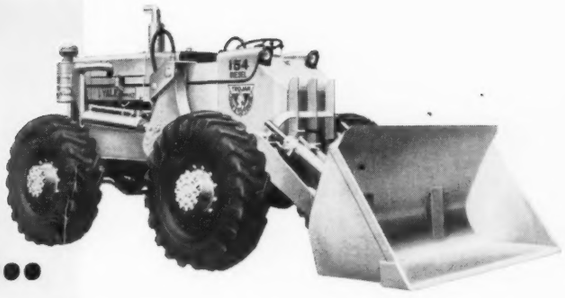

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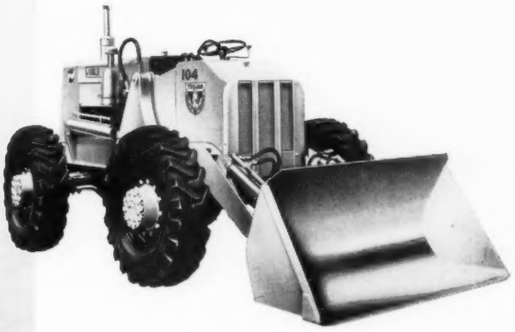

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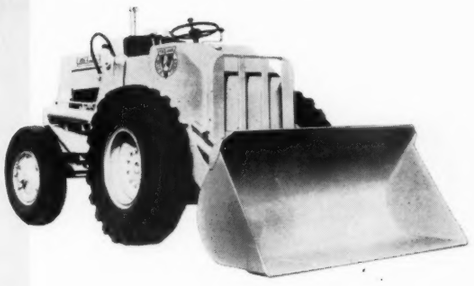

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By witnessing a competitive demonstration between Trojan and any other model of the same class, you will see beyond a doubt how Trojan's many 'plus' operating features enable it to outperform time after time . . . Ask for such a demonstration any place — at any time!

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For more facts, use Request Card at page 18 and circle No. 402

How to save time pouring concrete under a low ceiling

Pouring a concrete floor, 80 by 180 feet, may be just an ordinary job—but *not* when it must be done with a ceiling only 10 feet above you. Yet that was the problem Oman Construction Company of Nashville, Tennessee, faced recently—and licked! First floor and basement columns of a large building had been poured and in use for several years; now a 6-inch basement floor had to be poured and curtain walls built.

Other machinery too big or too slow

Before starting the job, management carefully considered the equipment on hand. Usual mixers and other machines measured too big for basement use. Wheelbarrows or "Georgia buggies" were sure to be too slow and costly. But there was one piece of equipment that *might* do the trick. They called the firm's mobile Michigan Tractor Shovel in from loading work, and tried it out.

Michigan proves "extremely maneuverable" between columns

In its test, the Michigan Model 175A received a full bucket load of ready-mix from a transit mixer. With bucket "cradled" in normal low shock-resistant carry position, down the ramp it went into the building's basement. Less than 8 feet high, the Michigan easily cleared the first-floor beams overhead. Load was poured out quickly, carefully—and back out of the basement the Michigan went for another 2¼ yards (struck measure). Power-steered and power-shifted, the Michigan proved extremely maneuverable among the many supporting columns. So, from then on, it was Michigan all the way.

Rough-spreads concrete, too

It wasn't long before the job foreman discovered Michigan could do a good job of rough-spreading the ready-mix, too. Simply by lowering the bucket, holding it under pressure and dragging backwards, the Michigan left the surface ready for the finishing crew. Finger-tip bucket control and unusual maneuverability made this time consuming job a cinch, dispensed with many of the laborers ordinarily needed.

Try Michigan on YOUR problem-job

Everyone gets a "problem-job" from time to time. Maybe *you* have one now. If it involves loading or carrying bulk material, we'll wager a Michigan can do it quickly, efficiently, at a minimum cost. But, see for yourself! Won't cost you a penny. Just call your Michigan Distributor, ask him to arrange a demonstration. *You pick the job.*

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